THE

# WESTERN JOURNAL

OF

# MEDICINE AND SURGERY.

SEPTEMBER, 1846.

## ART. I.—*The History, Value, Uses, and Effects of Quinine and its various Salts.*

By SAMUEL HENRY DICKSON, M.D., Professor of the Institutes and Practice of Medicine in the Medical College of the State of South Carolina.

In compliance with the request of the East Tennessee Medical Society, I proceed to make a few remarks upon the History, Value, Uses, and Effects of Quinine or Quina and its various Salts. In the following pages I wish it to be understood, that my principal purpose is to collate and compare the views of others rather than to offer anything original on the subject. It would save any practitioner much time and enable him to avoid many errors, if he could obtain a clear statement of what his brethren had done and were doing, in regard to the management of the numerous forms of disease and the remedies employed for their relief and cure.

As in science and the arts generally, the earlier and more important discoveries were made in the East, so in medicine we derive from the same quarter of the globe some of our most impressive drugs. The use of opium alone, learned by the Crusaders from their Saracen enemies, may be regarded as a compensation, not inadequate, for all the evils inflicted upon Europe by this madness of the Middle Ages. The Asiatics, passing their lives in violent alternation between enthusiastic action and torpid repose, sought solace every where in the influence of powerful narcotics; and found in the gunjah and poppy the means of "steeping their senses in forgetfulness" and losing, in a blissful unconsciousness, the impatience natural under all sufferings.

When this western world was opened to the older sons of civilization, by the voyages of the two Italians, Colon and Vespucci, it soon became known that here also existed one narcotic worthy of being added to the resources of our restless race; and tobacco rose rapidly into favor in the Eastern hemisphere in spite of sage, moral, and royal denunciation. It is not however stated that, in the aboriginal practice of America, this weed has ever obtained a place; nor is it indeed a very great while since the bolder and more reasoning European has ventured upon its prescription in definite formulæ.

So far as I am aware, *Cinchona* is not mentioned at all by the first set of voyagers who landed upon the continent, nor have we any available information, either as to the period in which it came to the knowledge of the natives, or the mode in which they were led to its application to the cure of fevers. This last must be, from the nature of circumstances, a topic of unusual obscurity. In the narcotics of obvious influence above mentioned, accident, on the one hand, occurring during their habitual use, and on the other, a plain analogy, would point out their power to relieve pain and sooth restlessness, such frequent elements of disease. But cinchona, notwithstanding the absurdities affirmed by the homœopathists of the thousand and one symptoms to

which it gives rise, is not in this way at all suggestive; and it would seem must owe to the merest chance its introduction into the Materia Medica. There is some doubt indeed whether this occurred to the aborigines at all. Vespucci, who gives an account of the manner of treating fevers resorted to by the Indians with whom he met, describes only their harsh methods of forcing an abundant sweat by rough exercise and vehement alternations of temperature. We are indebted to the Jesuit missionaries for the Peruvian bark, which their European experience may have led them to employ as a bitter tonic in febrile debility, and must not withhold from the good Fathers our thanks for this excellent boon to humanity. They have found their reward, doubtless, in Heaven; earth could offer nothing to recompense them for their saint-like beneficence and lofty self-devotion.

Cinchona soon grew to be a favorite with the profession on both sides of the Atlantic, and one is surprised at the readiness with which its application was extended from one form of disease to another, until it had been duly experimented with, in all or nearly all "the ills that flesh is heir to." This application became gradually more and more restricted, as a sort of gradual approach was made to the physiological notions (so called) that culminated and fell with Broussais; requiring us to refrain from stimulants in cases of hyperexcitement, and finding hyperexcitement almost everywhere. Universally regarded as a tonic and a stimulant, those who, with Brown and many of his predecessors and contemporaries, saw debility in all morbid action, were not apt to be deterred from its use even in fevers and inflammations.

Perhaps it was among West Indian practitioners, that there arose the two doctrines which gave a definite direction for a long while to the therapeutical employment of cinchona: I allude to the opinions even now prevailing, first, that it possesses an antidotal influence in contrast or opposition to that of the marsh poison, whatever it may be, malaria; and second, that it is essentially an antiperiodic, gifted with

power to arrest all maladies of intermittent and paroxysmal recurrence. Consider how many pretexts became accumulated for the exhibition of bark. It was earliest introduced as a specific febrifuge, and prescribed in all fevers. It was next used by many as a tonic, and thus old Lieutaud recommends it in quotidians, because "besides its febrifuge virtue, *appertaining but little to this species of fever*, it obviously possesses a stomachic and roborant quality." Of course this adapted it to a long list of maladies. The most recent English writer on materia medica, Johnson, still asserts that "the great value of cinchona consists in the power which it possesses in arresting periodic or intermittent diseases." On this side the Atlantic, the profession, with great unanimity, hold to its antimalarial virtue. But McCulloch has taught us that masked, or obscure, or confused impressions from the malarial poison, may give rise to or modify almost all diseases of every class, order, and genus; and observation convinces us of the very general tendency to follow notable periods of remission and invasion or exacerbation.

Nor were our elder brethren slow in urging forward the remedy to obtain decided effects from large and impressive doses. Not to dwell on the practice of the West Indian physicians, the amount of half an ounce and an ounce was given even in London, by Huck and Fordyce. If the calculation be correct that five grains of quinine are equal to a drachm of bark in powder, we need not discuss, any longer, the question as to the merit of the first administration of large doses; *forty-five* grains of the former would satisfy most of our boldest practitioners.

But this dose was disgusting, offensive, and difficult to retain on the stomach, and we must congratulate ourselves and the world renewedly, upon the detection and separation of the alkaloid principle, in which resides the chief virtue of that Peruvian tree which has so long given health to the nations. I need not here say anything of the process by which Pelletier and Caventou were led to the discovery of this alkaloid and its convenient and invaluable salts. Honor

to the men and country from whom we derive these gifts! Well do they deserve our gratitude and admiration. To France and to the French belong indeed the true glory of the highest civilization. Warlike in temper and of unlimited ambition, they yet feel, acknowledge and act upon the sentiment that the meed of fame does not appertain to courage only; but that the fairest laurels may be won as well by the skilful and devoted physician as by the brave soldier.—France and the French alone reward alike the arts of peace, and benevolence and preservation, with those of force, devastation and destruction.

The preparation of quinine in common use is properly a disulphate, though called universally the sulphate of quinine. It is nearly insoluble in water, but its solution is readily effected by adding a few drops of sulphuric acid, which converts it into the neutral sulphate and the bisulphate. There has been some question whether this quantity of acid may not exert an injurious influence upon the mucous surface of the digestive tube. This may easily be avoided I think; for I have not been able to perceive any difference of time between the effect of a solution of acid or neutral sulphate, and a diffused mixture containing the same quantity of disulphate in a little mucilage. The medicine, doubtless, passes rapidly into the circulating mass; for although it has not been detected in the blood, it is promptly found in the urine.

The specific nature of this important therapeutical agent; its essential tendency to affect certain organs or systems; to modify exclusively or peculiarly certain functions or sets of functions; these are topics of high interest, and have, especially of late, been widely and warmly discussed. I agree with those who rank it among the narcotics. Its action is eminently determined upon the brain and nervous system; and upon these it produces an impression altogether characteristic. A moderate dose given to a person in health, an overdose in the case of an invalid, will give rise to tinnitus aurium, a buzzing or rushing sound in the ears, combined with more

or less deafness, a throbbing in the head, cephalalgia, occasionally some photophobia, and almost always, in greater or less degree, that state of mind and body which we call "nervousness," in which the hands tremble, the senses are readily startled by a sudden impression (as by an unexpected noise or jar), and the temper is petulant and irritable. The pulse in some persons becomes slower, in others it is more frequent.

The toxical or poisonous effects of quinine are very rarely met with among us. Having established the state or condition above described, now familiarly referred to in the use of the term quininism, few persist with the medicine or increase the amount exhibited. From authors we collect the following list:—vertigo; amaurosis; deafness; paralysis; prostration, as shown by smallness and rapidity of the pulse; coldness and paleness, or lividity of the surface; urticaria; cold and clammy sweats; cardialgia; nausea and vomiting; diarrhœa and dysentery; congestion of the lungs, as shown by dyspnœa and other signs; hematuria; a disposition to abortion in pregnant women; epileptic symptoms; delirium; coma; and in a few instances death. Some ascribe a portion of these accidents at least, as I have already said, to the amount of sulphuric acid requisite to the solution of the quinine. On the other hand, Briquet, in whose practice two of the fatal cases happened, lays great stress upon the completeness of this solution; dreading the accumulation of the insoluble disulphate in the digestive tube, and its sudden converson into a state of activity by some profuse secretion of acid. Briquet believes that when using the quinine in solution we shall always be safe, if we desist from if when prostration and vertigo appear, or the increasing frequency and smallness of the pulse indicate a dangerous depression of the circulation. I have elsewhere entered into some details on this subject, and beg to refer to the Southern Journal of Medicine and Pharmacy, vol. i, No. i, for a history of two or three instructive cases.

It would be difficult to point out the fatal quantity of this agent. In one of the deaths occurring under the care of M. Briquet, the patient took "a comparatively small quantity of quinine;" in another not quite one hundred grains in two days; in a third, treated by M. Recamier, the fatal result took place from the exhibition of about one hundred and twenty grains, in doses of five grains every hour. Furious delirium with extreme agitation supervened, and death in a few hours; autopsy revealing an intense meningitis. We are accustomed in this country to the employment of *so much larger quantities* without injury, that we very readily admit the views and explanations of Briquet, who attributes the two first of the deaths spoken of, to other causes, developed on post-mortem examination, and considers the meningitis of the last to be an accidental coincidence. We shall see by and by that quinine has been used freely, and, as is alleged, successfully, in very serious inflammatory and quasi inflammatory affections of the brain and its membranes.

Of cinchona, either in powder, or infusion, or extract, there is no poisonous dose so far as we know. When an ounce or more of the powder has been taken, the stomach may be offended and reject it, but there are no worse consequences. Its bitterness is not very intense. Its tonic quality I am not inclined to doubt; but it is not clear that this belongs at all to the quina which it contains. Besides the cinchonine, whose influence is supposed to be closely analogous to that of quinine, it holds several vegetable principles together, of which, perhaps, the gallic acid and tannin may be the stimulant or excitant as well as astringent agents. In view of this varied composition of the drug, I am led to regret sincerely the disposition to abandon its use altogether; the indifference of the profession in procuring, selecting, and preserving it; and the almost universal desertion of nature's admirable combination of its constituents, for the elegant and invaluable preparation of one of its elements yielded us by art. I am persuaded that a proper discrimination should be attempted here; and that as there are still many severe mal-

adies, in which we prefer to trust the crude opium rather than morphine and its delicate formulæ, so there are certain cases even of fever itself, which would be more decidedly benefited and would convalesce more thoroughly under some of the well chosen though almost obsolete modes of exhibiting cinchona, than the more recent and simple administration of quina and its salts.

I have already said that I regard quinine as a *narcotic.* This peculiar and vehement influence is clearly pointed out, both in its curative and poisonous effects. But this, it is contended is not all. Prof. T. Mitchell strenuously maintains its possession of a direct *febrifuge* or antifebrile power, and Professor Harrison agrees with him, that if anything can check or put an end to fever, quoad fever simply, it is this antidote. Its antiperiodic virtue is strongly insisted on by a large class of physicians, among whom we may select Cazenave as having adapted it to the treatment of diseases of almost indefinitely long intermission; and Miller who applies it equally to intermittent affections so short as to require nice observation. Of its *antimalarious* property I need say nothing; it is in our own country universally believed, and questioned by none any where except those who deny the separate existence of the marsh poison. Its *sedative* quality is by some supposed to be clearly made out—Boling and M'Cormick, with many others, have gone far to establish the fact, that it may be used with perfect safety, even where there are present the most decided symptoms of inflammation. Briquet has shown that it, at least occasionally, exerts an obvious power in controlling them. Its *anticongestive* agency, (I can contrive no better phrase) will find numerous advocates all over our south western country, where it is regarded as the principal or indeed almost the only remedy to be trusted to, in those attacks of fever specially characterized as congestive. If the enlargement of the spleen, whose relations to intermittent fever are by Piorry regarded as so essential, be of congestive form, they are asserted by him, whether transient or permanent, whether hypersplenohemia

or hypersplenotrophia, to be under the most immediate and instantaneous subjection to quinine; a fact which may, if confirmed, be looked on as conclusive of this assumption.

I have thought that it may be of some advantage to collect together the several statements which in the course of my reading, I have met with, of its application to numerous and varying forms of disease. In the anxious search after remedies in difficult cases; in the doubtful hope mingled with eager wishes to preserve life and relieve suffering, which agitate always our most responsible profession, such a catalogue may be referred to as, at least, suggestive.

Of course it is proper to commence with *Intermittent Fever.* Its employment here is now universal, and the only mistake likely to be made by the merest tyro, is in the mode of administration of our very trustworthy remedy. In all ordinary cases, I prefer moderate, or what would perhaps be called, small doses, to large ones; a grain or two every second or third hour during the interval of our common tertians or quartans, will scarcely ever fail us; in the quotidian I would give four or five grains immediately on the subsidence of an exacerbation, and afterwards follow the same course as above laid down. In threatening attacks, pernicious, malignant congestive, the quantity should unhesitatingly be increased—the state of the nervous system already described as quininism, should be brought on as early as possible after the first paroxysm, and ought not to be permitted to subside entirely until two periods of invasion have passed by.

*Remittent Fever.* It used to be an acknowledged rule that we should wait for an entire intermission; but even the cautious practitioners of the old school made occasional exceptions—Lind, and Clark, and Irvine, employed cinchona in the best remissions they could obtain in persistent cases, after the first week or ten days. Fearne, of Huntsville, Ala., Tuck, of Memphis, Tenn., and Stratton, of Canada, may be

quoted in favor of the beneficial administration of free and impressive doses of quinine in the management of remittent Fever.

*Continued Fever*, in all its forms, has been treated with cinchona and quinine; typhus and typhoid fevers were thus met by Huxham, Lieutaud, and many others of the old regime, who were forced to use the bark in substance, infusion or tincture. Recently, Waton and Briquet in France, and in our own country, Mitchell, Montgomery, and numerous fellow practitioners make use of the sulphate of quinine in all fevers known by these names.

*Yellow Fever.* The testimony on this subject is discrepant and deserves to be succinctly recounted. The ingenious and able editor of the New Orleans Journal, Prof. Harrison, speaks in strong terms of the success of Drs. Hunt, Mackie, and himself, in the yellow fever of 1839 in that city. The method to which he ascribes the favorable results "consisted in promptly giving the sulphate of quinine as soon as possible after the attack. The dose varied from 20 to 80 grains given in a little cold water. If the stomach was very irritable it was given by injection. If the first dose failed to produce an apyrexia in eight or ten hours, a second dose was given. The earlier it was given the better; but it should not be given after the second day." Thus late it always does injury. In this statement he differs from preceding authorities, by whom it is recommended either to wait for a natural apyrexia or remission, or to make one artificially by vehement V. S. or other modes of depletion. "I shall never forget my surprise," he says, "the first time I witnessed its effects. The fever in most cases was cut short as if by enchantment." From Dr. Watt, of Georgetown, Demerara, we learn that "the practitioners of that country give with great success in their yellow fever, 20 to 24 grains of sulphate of quinine with calomel every four hours until the symptoms abate." Beugnot, in an instructive essay in the first No. of the New Orleans Journal, has collected a host of authorities in that

city and the West Indies, who give strong testimony in favor cinchona and quinine. To these we must add the names of Bally and Pariset, who saw sulphate of quinine highly serviceable in the yellow fever of Barcelona, in Spain, in 1820.

On the other hand, Dr. Lewis, of Mobile, reports an entire failure with it in all the various forms of yellow fever he met with, intermittent, remittent, and continued; and Dr. Stone speaks still more unfavorably of it. I have used several of the preparations of cinchona, with occasional benefit, in the yellow fever of Charleston, from twenty to thirty years since, as in the epidemics of 1817, 1819, and 1824; but its good effect was by no means constant, nor did the majority of cases admit of its employment at all. I was led to try it by the favorable reports of some of the West India physicians. In more recent epidemics I have experimented with the sulphate of quinine, but cautiously and in small doses. Not finding any good effect from it, I have abandoned it, though I still exhibit, in certain cases, the infusion of cinchona with the tincture, as "stomachic, roborant" and astringent.

*Continued Malarious Fever:* if there be such a disease, which I doubt, believing it to be an obscure remittent, complicated with serious congestions and inflammations, it is surely manageable with sulphate of quinine. Maillot describes such a fever in Bonao on the African coast, and Stratton at Penetarquishene on Lake Huron. Cordier gives us two cases of marsh fever (fievers marécagenses) occurring in the South of France, in which there was "complete impossibility of finding the slightest remission." They were promptly cured by sulphate of quinine.

*Congestive Fever.* I use this phrase in compliance with *custom* merely. In the condition which it implies, a condition common, doubtless, to all types of fever, American physicians almost universally regard sulphate of quinine as among the best remedies, if not the only one to be trusted to; and administer it in doses indefinitely large, from ℈i to ʒi or ʒii repeated pro re nata.

***Puerperal Fever.*** Biagini, of Pistoria, recites the history of a case which his French translator, in the Journal des Connaissances, terms a "fievre perniscieuse, delirante, amaurotique," a malignant puerperal fever, complicated with delirium and blindness, "cured completely" by the use of the citrate of quinine.

***Hectic Fever.*** I have seen the paroxysms of this fever of irritation, in a few instances, suspended by timely doses of sulphate of quinine, in moderate amount. In the great majority of the attempts I have made with it, however, it failed.

***Traumatic Fever.*** Guersant reports its favorable influence in a patient for whom, in the Hôpital des Enfans at Paris, he had amputated both lower extremities.

***Erysipelas*** is the only only one of the exanthemata admitting of introduction here. Its typhoid or contagious form as occurring in hospitals, has long been familiarly treated with free doses of bark, especially in London; and for my own part, I still prefer the infusion and tincture of cinchona to the quinine, which has superseded it among American physicians for the most part, in such examples as seem to allow of or indicate a resort to either.

Passing on from the pyrectic affections to the phlegmasiæ and others, ***arachnitis*** is affirmed to have been repeatedly treated by Bally with sulphate of quinine in the enormous dose of sixty-two grains.

***Encephalitis*** is managed in the same way, though with smaller doses of our remedy by Delens.

***Epilepsy*** was thus cured by Taroni in a young woman. The attack was caused by fright and manifested a marked periodicity. He began the treatment with 20 grains daily, gradually increased to 40 grains a day for six days, and then gradually diminished.

***Hemiplegia.*** A very curious case of intermittent hemiplegia is told in the Journal des Connaissances for November 1st, 1845, which was treated skilfully and successfully by

Freschi, of Turin, with free doses of sulphate of quinine, after the failure of V. S., vesicatories, &c.

*Chorea.* Friberti reports a severe case, of two month's duration, caused by fright, in a child æt. 11 years, in which after a laxative, he gave a scruple of sulphate of quinine in twenty-four hours, in six potions. The course began on the 29th April; the child was well on the 12th May, and dismissed on the 15th.

*Hemicrania and Orbital* intermittent pains. Under this phrase Rodrique, of Montpellier, describes a very painful affection, often regarded as malarious, but, as I should judge, as often truly catarrhal, known by the names of 'brow-ague,' 'sun-headache,' &c. It is an intermittent inflammation of the mucous membrane of the frontal sinus and antrum. It is always regularly periodical; usually comes on in the forenoon and continues until near sunset. In Rodrique's case it came on every day at 3 o'clock, and lasted with severe suffering for four hours. He succeeded at last with free doses of sulphate of quinine, after failure with all other modes of treatment. I once met with similar success, but have seen the same treatment useless and inapplicable.

*Pneumonia.* In the pulmonary affections of malarious districts, cinchona in infusion, especially as combined with serpentaria and other diaphoretics, has been long considered a useful remedy. Drs. Boling, of Mobile, and Flint, of Buffalo, have presented strongly the claims of sulphate of quinine, as well adapted here; and McCormick says definitively that he has "seen it allay febrile action in pneumonia."

*Intermittent Dyspnœa* of great intensity, a paroxysmal strangulation (espice d'étranglement) which he oddly enough considers a "fiévre larvée," a masked or undeveloped fever, complicating hooping cough, is described by Morand. It attacked the patient, a child æt. 7 years, with many frightful symptoms of varying interest, at the same hour for four successive days, enduring each time a quarter of an hour. A dose of 60 centigrammes of sulphate of quinine put -

immediate end to the paroxysm, and another completed the cure.

***Rheumatism*** has been already mentioned. Legroux administers the sulphate of quinine 'in small and divided doses.' Briquet in large amount. In acute rheumatism, the latter graduates the dose according to the intensity of the symptoms, "increasing the quantity in correspondence with the violence of the fever," exhibiting from 40 to 62 grains in the twenty-four hours. In chronic rheumatism, the doses were less; not exceeding 30 grains per diem, as a general rule. The first favorable effect, he says, is sleep; next, there is diminution of pain and swelling in the parts affected. He reports eight cases among twenty, cured in the short space of forty-eight hours.

Of *Splenic Enlargement*, hypersplenohæmia, or mere engorgement of vessels, and hypersplenotrophy, or ague-cake as it is termed with us, enough, perhaps, has been said.—Piorry, who maintains the universal dependence of intermittents upon splenic derangement, asserts the magical power of sulphate of quinine over all enlargements of this viscus; and even affirms that it is capable of producing within a few seconds, its total absorption when in a healthy state. These statments are incredible. We can scarcely doubt the influence of quinine and certain other agents to be hereafter mentioned, in causing the immediate subsidence of the spleen when the seat of simple sanguineous congestion; but is impossible that within 40 seconds, or even as many hours, absorption of solid tissue, whether the hypertrophy be analogous or heterologous, should take place, under the impression of any medicine whatever.

The unquestioned fact of the rapid disappearance of some of these splenic enlargements suggests the reasonableness of a trial of the sulphate of quinine in similar disorders of other vascular parts. *Orchitis*, for example, as we find it stated in the Journal des Connaissances, was treated by this remedy, successfully, after the failure of depletion, emollients, &c., in two cases under the care of Poura.

In the British and Foreign Review for June, 1845, there is a case of *constipation*, which, after obstinately lasting six days, was relieved by the sulphate of quinine in doses of five grains, repeated every half hour.

I conclude here this catalogue which might be almost indefinitely augmented from the periodicals on both sides of the Atlantic. If it convey a single hint, which shall aid an embarrassed practitioner in any difficult emergency, or contribute to the relief of a single fellow creature from danger or suffering, my purpose in its preparation will be fully attained.

We scarcely employ quina, in this country, in any other form than its combination with sulphuric acid; indeed its other salts are not easily procured. The *citrate* and the *lactate* are spoken of as milder and less offensive than the sulphate, while they retain all the requisite efficiency. The *valerianate*, which we owe to Prince Lucien Bonaparte, is highly lauded as combining very valuable antispasmodic and anti-irritative properties, with the rich virtues of the familiar article, but is scarcely accessible in ordinary practice, on account of its expensiveness. Devary assures us that it is equal to the sulphate in its antiperiodic effects, and superior in its nervo-sthenic properties. He reports many cases, some of which were severe and complicated intermittents, which the sulphate of quinine had failed to relieve, and which yielded when the valerianate was employed; he gave one grain at a dose and used per day from 1½ to 6 grains.—Meirieu recommends as preferable to the simple sulphate of of quinine a mixture containing that salt in solution and charged with an excess of carbonic acid gas; by which, he says, the quina is rendered more soluble, acts with greater energy and in a smaller dose.

Kingdon has prepared an *iodide* and *bin-iodide of quina*, with the view of "combining the tonic qualities of the one, with the excitement of the absorbents produced by the other of these powerful agents." He has exhibited the bin-iodide

in several cases of scrofulous enlargement of the glands with great benefit.

The *ferro-cyanate* of quinine is very favorably mentioned by Dr. Fenner in the November, 1845, No. of the N. Orleans Journal, to which periodical I have made frequent reference as an abundant storehouse of useful facts and suggestions. He says, "it seems to exercise all the febrifuge and antiperiodic virtues" of the sulphate, without producing the disagreeable effects comprised under the phrase quininism, and that "it is much prescribed in cases where the head or stomach cannot bear the sulphate." An instructive case is detailed in which the ferro-cyanate was given in five grain doses every two or three hours, to a patient who refused to take the sulphate because it had made him perfectly deaf before. The condition of the subject was alarming; but the result was perfectly satisfactory; the head was not at all disordered and the paroxysm did not return.

Of all these combinations, however, that from which we would, a priori, expect most definite and certain advantage to be obtained, is the arsenite of quinine first found by Berzelius, as uniting two of our most impressive febrifuges. It is highly eulogized by Bertoloin, who confides in it almost exclusively, and has obtained with it successes equally astonishing by their rapidity and their permanence. He affirms that a single grain of this salt suffices to cut short the most obstinate relapses of intermittent fevers, and that its use not only cures the fever, but in the majority of cases dissipates all glandular enlargements. He thinks it prudent not to administer more than *one-twelfth* of a grain at a dose, although it has not proven injurious even in the amount of one-third of a grain.

Pereira and some others of the recent writers on Materia Medica warn us that the cinchona tree, being of native growth only over a very small territory, and capable of cultivation no where else, we are liable, in the process of even a short time, to have our supply of this most indispensable medicine limited most inconveniently, and even altogether

exhausted. Our worthy Surgeon General, Lawson, has accordingly with laudable and sagacious forethought directed the attention of American practitioners to the search for substitutes, which may take the place of quinine, if we are in any manner deprived of it, and has particularly suggested the salicine as worthy of careful and extensive trial. The best report that we have as yet on the subject, is that of Dr. Fenner, one of the editors of the New Orleans Journal, who gives the result of 20 cases of fever treated with salicine. Its great inferiority to quinine will not be denied by any one, but both from the very valuable details afforded us by Dr. F., and from a few observations I have myself had an opportunity of making, I am entirely satisfied that it possesses decided febrifuge properties.

*Opium* and many of the preparations of its constituent elements, ought to be considered as among our best aids to quinine, and also among our most promising substitutes for it. The *muriate of narcotine* eulogized by O'Shaughnessy is unequivocally an antiperiodic of very considerable power.

Dr. Corrigan gives us a case of ague in which sulphate of quinine had been administered "with the effect only of prolonging the intervals between the fits. A dose of *sulphuric ether*, 3ii, with tinct. opii g$^{tt}$.xx, put an end to the attack. The spleen in five minutes diminished from 6 inches by 7½ inches to 4½ by 6¾; the skin becoming warm (it was in the cold stage) and the pulse fell from 120 to 96." Hence Dr. C. concludes—"1. That the spleen can suddenly alter its volume. 2. That other agents as well quinine can produce this sudden alteration and size; and 3. That the cure of the disease can be effected by other remedies." The meaning of this last proposition is evidently that sulphuric ether and opium are available substitutes for quinine, an assertion which we would gladly see confirmed by experience.

*Piperine* must not be omitted in this enumeration of our armory of febrifuges, in case of an unfortunate failure of the supply of quinine and cinchonine or cinchona. It is

an adjuvant of great value, not only when we are employing these latter, but combines well with any on the list of substitutes for it.

I should not have thought it necessary to refer in this connection to *arsenic*, so well known and familiar an alterative, preferred by some and by most considered only second to quinine, but that I wished to draw attention to some remarks published not long since, by M. Boudin, Med. en chef de l'Hôpital Militaire de Versailles. This gentleman whose experience seems very extensive, tells us that he has substituted arsenic altogether for quine, as far more certain in its effect and more worthy therefore of our confidence. He treats all his cases with it, and has met with uniform success; he affirms that the sulphate of quinine had previously been given to more than five hundred of his patients in vain.

In some of his views, I am disposed to agree with him, while others I look upon as erroneous. I prefer to commence the management of every case with the quinine, but, like him, I have thought the impressions made by it, however efficient and salutary, less permanent than those which arsenic produces on the system. I have had frequent occasion to witness the return of intermittents cured by quinine alone, after longer or shorter intervals; and this recurrence becomes very annoying to some patients. But I have never yet seen a relapse or return of the disease, unless after new and obvious exposure to its miasmatic sources, after the arsenical treatment had been fairly carried out.

Lastly, I must say a few words of *bebeerine*, the most promising by far of all the substitutes proposed for our invaluable remedy; and indeed if the reports already received, prove correct and are established by a prolonged and extended experience, one destined to become a formidable rival to it whenever we are permitted a choice. Its claims are well supported by Dr. M. Logan in the Edinburgh Medical and Surgical Journal. It is a vegetable alkali, obtained from a plant of the natural order *Lauraceæ*, genus *Nectandra*, called

*N. Rodiei*, in honor of Dr. Rodie, the discoverer of its medicinal powers. Like quinine it is prescribed in its combination with sulphuric acid, as a disulphate or a sulphate. It is sold at less than half the price of the disulphate of quinine, its dose being about 12 grains, in which quantity it does not disorder the head or produce any other unpleasant effects. One authority tells us that it acts occasionally as a laxative. Dr. Watt, of Demarara, thinks it, like arsenic, slower but more permanent in its influences than quinine, from whose accidental or toxical annoyances it is quite free. Dr. W. is subject to urticaria when he takes quinine and resorts to bebeerine preferably, as not exciting any such annoyance. In a case of symptomatic fever from abscess, the patient took with good effect sulphate of quinine in 10 grain doses, but he also was distressed with a consequent urticaria; substituting bebeerine in the same dose, he obtained the same benefit without the nettle rash. Dr. J. Hughes Bennett, of Edinburgh, a very respectable authority, declares that he has "no doubt that bebeerine possesses all the valuable properties of quinine in an equal if not a superior degree," Prof. Simpson, aware that Piorry accuses quinine of being apt to produce abortion or premature labor, tried the sulphate of bebeerine in the periodic neuralgia of pregnant women, with perfect success; he regards it as "antiperiodic and tonic, with far less stimulant and irritating effect, than we see produced by quinine.

As yet, I have been unable to procure any of this highly lauded medicine, nor do I know that any of it has hitherto been imported into our country. As soon as it can be obtained, I shall eagerly resort to it, and if not disappointed in my hopes of benefit from it, shall gladly add it to the brief list of remedies regarded with trust and confidence.

Charleston, April 11th, 1846.

ART. II.—*A Case of Double Consciousness, with Remarks by Professor Caldwell.* By B. F. BERKLEY, M.D., of Moorfield, Ohio, in a letter to Professor C.

JUNE 18TH, 1846.

*Dear Sir:—*

Knowing that you have paid much attention to the science of mental philosophy, I have taken the liberty to trouble you with an imperfect report of the most extraordinary case of mental disease, perhaps, ever recorded; at least so far as I am informed in the history of our profession.

Mrs. N. B., a citizen of this county, living about sixteen miles from Cadiz, the county seat, a married lady, aged 39 years, has been the subject of neuralgia of the face for about 17 years, otherwise a healthy woman. About five or six years ago she grew worse, (previously having attracted no particular attention) the disease assuming a strictly periodical type, returning every two weeks—at which times she suffered the most excruciating agony in the course of the fifth pair of nerves of the right side of the face. After suffering two or three hours in this way, she not unfrequently became sick at the stomach, and would vomit and purge. All these symptoms after a while subsiding, she would become entirely insensible to all external impressions. In this situation she would commence preaching in a loud and clear voice, and continue from two to three hours. She would then sink down as if she had fainted, and in fifteen or twenty minutes awake without the least knowledge of what had transpired.

She has had these periodical spells of preaching for five or six years every two weeks regularly, never having missed but two or three times. The novelty of the case has of course attracted a great many strangers from all parts of the country, and every body had something to say in regard to the matter—some alleging that it was all deception—some that the woman was divinely inspired—others, that she possessed as many devils as Mary Magdalene.

Hearing so many, and such contradictory statements, I determined to visit her myself, not believing much of what I had heard. Accordingly on last Sunday, the 15th inst., her regular day, I visited her. I determined to be there early in the morning (her preaching hour being at 11 o'clock, A.M.) to see her both before and after performance. I arrived at the house at 9 o'clock, and to my gratification found I was the first that had arrived; no person being present but myself and the family, I was introduced to Mrs. B—— by her husband in a private room. She was sitting in an arm chair, suffering all the agony of a severe attack of facial neuralgia of the right side, though somewhat different from most cases of that disease. There was no twitching of the muscles, great turgescence of the vessels of the face and neck; muscles of the neck very rigid; eyes very red; excessive intolerance of light, so much so, that she could scarcely bear to elevate the eyelids.

She says she feels an almost insupportable weight, like an incubus upon her head; there is an abundant secretion of saliva, which is altogether from the right side of the mouth. I talked with her for about an hour, or as long as she was capable of talking. I found her a very intelligent woman; she wished to know if there was nothing that would relieve her. I asked her if she had undergone any medical treatment. She said she had; that several eminent physicians had given her medicine. She had been cupped, her head shaved and blistered, ointment of veratria applied to the course of the nerve, and all the most noted antiperiodics, such as arsenic, the preparations of iron, &c., given in succession without the least benfit. She thought that under the tonic treatment she had got worse.

She continued to get worse and worse from the time I went into the room until about 11 o'clock, when her eyes closed and she became perfectly insensible to external impressions. In this situation she commenced talking.

She was placed in the sitting posture in a large room where a great number of strangers had collected. When

she first commenced talking she appeared to be choked with a frothy saliva—but she soon cleared her throat, and preached for two hours and ten minutes in a clear and distinct voice—sufficiently loud to be heard a hundred yards. She commences in the form of a prayer, but soon changes to preaching, quoting scripture very fluently and giving explanations. Sometimes she appears to wander in her mind, and not place her words properly, though this is seldom the case. Sometimes her appeals would be the most pathetic and eloquent, I ever heard. The first warning you have that she is about to conclude is the free spitting up of this frothy saliva. As soon as that appears she falters and falls over. She continues insensible for fifteen or twenty minutes, all the time spitting up this saliva, when she awakes by yawning like a person who had been asleep, and looks about with a vacant stare. She soon however regains her senses, and looks like another person, and knows nothing of what has transpired.

The most remarkable circumstance connected with this case is, that she can neither see, hear, nor feel, during all the time she is preaching. She is not disturbed by any noise that may be made, and if pricked with any sharp instrument, does not flinch, and her eyes are closed during the whole time.

It is the opinion of some of the physicians who have visited her that a limb might be amputated without her knowledge. After she recovers from this singular situation all the redness of the face and eyes disappears; she resumes her natural appearance and seems cheerful, and says her pain has vanished. I would remark that it is several hours before she can walk, as she seems to have no use of her limbs—but the next day she resumes her ordinary domestic duties with as much vigor as any of her neighbors, until the next paroxysm.

This may all be called deception or a religious fanatacism; but I think the history of the woman, and every circumstance connected with the case, seem to preclude such an idea. In the first place, it has been a well-marked case of

neuralgia for many years; she is not very loquacious, not so much so as most of her sex, never was an enthusiast on any subject; belongs to the Presbyterian church, and never was known to have a desire to preach, or talk in public on any subject. Taken all together it is one of the most extraordinary cases of disease of the nervous system that has ever occurred, and wholly inexplicable by me, and every one else that has seen her.

Her family is among the most respectable in the county; and I have conversed with men who have known the woman from a child, and none except a few uncharitable and ignorant persons, from whom she differs in doctrine, have ever accused her of trying to deceive the community.

*Remarks.*—The foregoing is one of those morbid affections to which the term MYSTERIOUS is almost *uniformly* and with much affected *significancy* and *wisdom* attached, not only by the great *mystifying body* of laymen, clergymen, and pseudo-philosophers, but even by the medical profession itself. Yet, if by the term we mean to designate something "*above human comprehension*," (and such is its most correct interpretation) there is no more *mystery* connected with it, than there is with a paroxysm of fever and ague, an attack of peripneumonia, or even with a sound and comfortable sleep. We can, I mean, just as easily comprehend, and as intelligibly explain the *double consciousness* and *somniloquence* of Mrs. B. as we can either of the other three conditions of the human system to which I have referred. The reason is plain. As far as *true and immediate causation* is concerned, we are essentially ignorant of them all. And so are we indeed of every other vital phenomenon—more especially if it be seated in the nervous system. For, entirely ignorant as we are of the genuine action, both healthy and morbid, of the other tissues of the body, we are, if possible, seemingly still more so of the action of the nerves.

Until within the last fifty years, scarcely any one, except enthusiasts and imposters, pretended to any real knowledge

of the nervous system, beyond that of its mere existence and appearance—more particularly of its *central organ, the brain.* Dr. Gall, by his discovery of PHRENOLOGY, toward the close of the last century, first brought that organ (the *chef d'œuvre* of the Deity on earth) from the gloom of midnight to the glimmer of morning. And scarcely has our light in relation to it advanced as yet beyond that glimmering. As respects *practical purposes* this will not be denied, whatever may be said or thought in relation to theory.

The affection of Mrs. B., on which I am offering these remarks, belongs to the class of diseases, our knowledge of which is believed to have been most improved by the discovery of Dr. Gall. The principal maladies of that class are, insanity in its different forms, epilepsy, somnambulism, somniloqence, (of which Mrs. B.'s complaint is but a modification) St. Vitus's dance, hysteria, tetanus, hydrophobia, and a few other like affections—especially those denominated *mesmeric.*

I am aware that, in classing mesmeric somniloquence with that which is called *natural*, the complaint of Mrs. B., I come into collision with the sentiments of a distinguished writer, expressed in an article, sometime since delivered, as an address, and subsequently published by him, on that subject. But, when supported by facts, such collision cannot move me. And, were the present a suitable occasion for discussing the question, many indubitable facts might be adduced to show, that *natural* and *mesmeric*, somniloquence not only belong to the *same* CLASS of affections, but that they are veritably *modifications* of the *same* affection. Nor do I consider it at all certain that I shall receive from physicians a *general* or even an *extensive* concurrence in the opinion, that the complaint I am considering is very closely allied to insanity. Yet, to my mind, no position can be more clear—nor any opinion better founded and more satisfactory. But I must no longer dwell on this view of the subject, but proceed to one more practically useful.

The very respectable author of the foregoing article has

solicited my opinion in relation to the most effectual mode of treating Mrs. B.'s complaint.

Though this is a question both delicate and entangled—especially as the patient has been attended by several able physicians, and acted on by powerful remedies for periodical complaints—and, *more* especially inasmuch as the lady has never been visited by me. Still, however, as nothing administered has proved beneficial to her, a prescription shall be hazarded. And that prescription is, that, provided she be sufficiently susceptible of the influence, (as I think it highly probable she is) let Mrs. B. be thrown into a profound mesmeric sleep, about two hours before the time of the paroxysm's commencement, and allowed to remain in it at least *four or five hours.* By the "commencement of the paroxysm" I mean the onset of *the neuralgia*, which appears to be the *prelude* to the *attack of somniloquism.* If *the former* therefore be prevented, so will the *latter*—precisely as the prevention of the *chill* of an intermittent prevents the subsequent elements of the fit.

It *may* and probably *will* be necessary for Mrs. B. to remain in the mesmeric sleep more than five hours. She ought to be thrown into it at least two hours before the first symptoms of neuralgia appear, and continue in it until two hours after the time at which it turns to somniloquism. The mesmeriser moreover ought to be expert and powerful, and the sleep as deep and perfect as it can be made. This remedy may not *effect a cure* on the first, nor even perhaps on the second and third trials. If the sleep, however, can be produced, it will at first give relief, and by subsequent and careful repetitions ultimately *cure.* But, if negligently and imperfectly employed, it will, like other remedies, under like circumstances, be useless and perhaps hurtful.

Am I asked how mesmeric sleep is to prevent neuralgia and its sequelæ, in the case of Mrs. B.? I answer, by taking such thorough and stable possession of the whole nervous system, as to render it entirely insensible, and proof

against every other sort of impression. And this I know it does. Hence, during its continuance, teeth have been extracted, luxated and fractured bones reduced and set, tumors excised, and limbs amputated, without exciting in the patients a shade of sensation. Some of these operations, where there was no excitation of feeling I have myself witnessed. I was also a spectator of the following experiment performed on a lady in this city (*Louisville.*)

The poles of a very powerful electro-magnetic apparatus being placed in her hands, and the machine put in action, she could not tolerate the impression of the aura, for a single moment, but dropped the poles with a start and a slight scream. Being an uncommonly susceptible mesmerizee, she was then deeply mesmerised, and the poles again placed in her hands, and the machine much more highly excited than before. And she was as insensible to the aura as a marble statue. Nor could any person present, in his natural condition, bear the thrilling of it for an instant. I myself grasped the poles, and was compelled to drop them again, as suddenly as the lady had previously done.

But, for my belief in the efficacy of mesmerism as a remedy for periodical neuralgia I have yet other reasons, which most persons will deem still sounder and stronger than those I have rendered. In several slight cases and in one very severe one, I have witnessed its complete success. Nor, where the sleep can be rendered sufficiently deep, am I prepared to believe that it will ever fail.

ART. III.—*Observations on the Blood in Asthma, Epilepsy, Hydro-pericardium, and Bilious Fever.* By J. R. BUCK, M.D., of Louisville, Kentucky.

The physical changes in the blood as to color, consistence, coagulability, the formation of the cup, or the buffy coat, are inconstant,—occurring in diseases opposite in character, and of little or no diagnostic value. We are compelled, therefore, to seek in those intimate chemical changes in the blood, the nature of all diseases in which this fluid is either primarily or secondarily involved. Marshall Hall practises bloodletting as a diagnostic, as well as therapeutic measure; tolerance by the system of the loss of a large amount of blood indicating inflammation, the want of this tolerance, the absence of inflammation. But to practise this means of diagnosis, even if it could be relied upon, would require the abstraction of an amount of blood injurious to the patients in all affections not inflammatory, whereas in the process of analysing that fluid the results, even in the present state of our knowledge of its pathology, afford us far more certain information, and the quantity necessary to be taken is very small.

I have examined the blood in phthisis pulmonalis, pneumonia, scrofula, chronic rheumatism, hydro-pericardium, epilepsy, asthma, and bilious fever. Reports of the four last mentioned cases only will be given in the present communication. In some future number I may publish the result of the observations upon the blood in phthisis, showing a wide difference in its chemical constitution in the different stages of the disease. The method which I pursued in these analyses was similar to that of Andral, Gavarret, and Zimmerman, except in the process of obtaining the blood corpuscles which, I believe, is more accurate, at the same time that it is much less complicated, than the process pursued by these experimenters.

Case I.—R. S., æt. 76 years, a farmer, born and raised on the Eastern shore of Maryland, of temperate habits, and with no family predisposition to disease of any kind, he enjoyed uninterrupted health until quite an old man. At 71 years of age he had some difficulty in discharging his urine; this increased for several months when retention became complete, and the catheter had to be used; since which time, nearly five years, the bladder has never been evacuated without the use of this instrument. At 73 he was occasionally troubled with palpitation, dyspnœa, and slight cough; the dyspnœa increased for about a year, the attacks becoming more frequent, and more severe, while the palpitation lessened; the feet and ancles, in the meantime, beginning to swell. In January, 1843, I first saw him; the dyspnœa was then constant, and, upon taking the least exercise, very intense; attended with a sensation of tightness across the chest; countenance expressive of great anxiety; cough loose, with mucous expectoration; pulse irregular, full; impulse of the heart scarcely perceptible, sounds feeble but natural in character; great prominence in the precordial region.

*Diagnosis.*—Hydro-pericardium. Prescription—four cut cups to the region of the heart; cream of tartar and jalap. This treatment caused marked improvement in a few days. Calomel, squills, and digitalis were then given, and subsequently syrup of the iodide of iron. Under this treatment the patient seemed to recover perfectly in a few months; has had since, at intervals of several months, attacks of dyspnœa, with violent palpitation. Bleeding from the arm, and leeching have been practised, but not with the same good effects which followed the application of cups.

On the 29th of June, I was called to see him; he had been suffering for several days with dyspnœa, and a sensation of stricture as though a cord was drawn tightly around the chest. Pulse was full and strong, but could be compressed; dry cough; slight cephalalgia. Took from the arm about nine ounces of blood, which yielded upon analysis:—

| | |
|---|---|
| Water - - - - - - | 798 |
| Solid residue - - - - - | 202 |
| Fibrin - - - - - - | 2·3 |
| Albumen - - - - - - | 65·4 |
| Blood corpuscles, - - - - | 122 |
| Salts and extractive matter - - | 12·6 |

It will be seen from this analysis, that the fibrin, (an increase of which is said by Andral always to indicate inflammatory action,) is not at all above the healthy standard; it is indeed rather below the amount, assumed by some writers as the average, in the healthy adult. The albumen and blood corpuscles are also rather below the healthy standard. The relative amount of water to the solid matters varies but little from the healthy average.

What practical deductions are we to draw from this observation? That the blood was healthy, all the constituents being within the range of healthy blood; that, whatever may have been the nature of this disease in the first stage, there existed no inflammatory action at the time the observation was made; but the fullness of the pulse, pain of the head, &c., depended upon some other morbid condition. The day after making this analysis I prescribed the counter-irritating lotion of Granville with very decided benefit; and upon a generous diet, with gentle tonics, the patient has continued to improve.

Case II.—A merchant, æt. 27 years, of healthy parentage, in the summer of 1845 had a slight attack of asthma, which passed off in a few days without treatment. In January, 1846, he had a severe attack of tonsillitis confining him to his bed eight days, from which he recovered entirely in a short time after getting up. In the latter part of June he was taken in the night with a severe attack of asthma. I saw him next morning when his condition was as follows: Respiration exceedingly laborious, with a feeling of oppression as

though a heavy weight was confined upon the chest; cough almost constant, dry and not deep; pulse 92, full and of moderate firmness; percussion elicited no unnatural sound; respiratory sounds feeble, with an occasional loud, intensely rough inspiration. Bled from arm to the extent of twelve ounces, when the patient became quite faint; the dyspnœa was somewhat relieved by the bloodletting; five hours after an emetic of tartrate of antimony and ipecacuan was administered, which relieved the paroxysm. Since that time he has had one very slight attack, for which he was not subjected to treatment.

ANALYSIS OF THE BLOOD.

| | |
|---|---|
| Temperature - - - - - | 98° |
| Specific gravity - - - - | 1032 |
| Fibrin - - - - - - | 1·3 |
| Albumen - - - - - | 66·8 |
| Blood corpuscles - - - - | 77·1 |
| Salts and extractive matter - - | 10 |
| Water - - - - - - | 843 |
| Solid residue, - - - - - | 157 |

The amount of solids to the water is much less in this case than in the first, and is below the healthy standard. 211 may be assumed as the average of solid residue in one thousand parts of healthy blood; 190 and 270 being the extremes. The fibrin is diminished to about one-half the normal proportion. The blood corpuscles are diminished in the same ratio as the fibrin. The albumen and salts are within the healthy range. There was nothing unusual in the blood as it ran from the arm; it was neither very pale, nor very dark; it coagulated readily and formed a buffy coat, but was not cupped.

By comparing this analysis with that of the blood in inflammatory diseases, a directly opposite condition will be found in the quantity of fibrin. In a case of pneumonia in-

volving extensively both lungs, as was proved by a post-mortem examination, the fibrin had increased to 6·5 in the thousand parts of blood.

Case III.—This was a case of congenital epilepsy, in a bright mulatto, æt. 25 years. This patient has a dull, heavy look, and a whining voice, but seems otherwise to be perfectly healthy; he was raised on a farm in Arkansas and always accustomed to lead an active life. The fits occur about once a month, but at no particular phasis of the moon, and have varied in this respect but little since the patient can recollect. He does not know that the disease was referred by his mother to any particular cause; is not aware of any family predisposition to disease of any kind. At the time the blood was taken for analysis he seemed to be in good health; his appetite was good, bowels regular, pulse and respiration natural. The following was the character of the blood:

| | |
|---|---|
| Temperature - - - - - | 96° |
| Specific gravity - - - - | 1031 |
| Water - - - - - - | 805 |
| Solid residue - - - - - | 195 |
| Fibrin - - - - - - | 2 |
| Blood corpuscles - - - - | 129·8 |
| Salts and extractive matter - - | 10·1 |
| Albumen - - - - - | 55 |

The blood in this case cannot be regarded as in a pathological condition. The albumen is rather below the average, but is within the healthy range.

All three of these cases come under the head of the neuroses; for although in case first inflammation doubtless existed, in the earlier stages of the disease, it had been subdued many months before the blood was examined; a strictly nervous condition existing at the time. I have called it hydro-pericardium because this was the original disease, and

probably the exciting cause of the nervous affection. There was no increase in the constituents of the blood in either of these cases above the healthy range; in one, a very marked decrease in the two most important elements, the fibrin and blood corpuscles.

Case IV.—The subject of the next case was æt. 20 years; generally healthy; joined the Kentucky cavalry about the 1st of June, and encamped in a flat and rather low situation, badly watered; was here exposed to much rain and intensely hot weather, a greater portion of the time without tents; his food being pickled pork and bean soup.

On the 28th of June he was taken with a severe chill followed by fever; next day the chill returned. I saw him on the 4th of July; he had had no chill since the 29th of the month before, but constant fever, with slight remissions; had taken Cooke's pills, blue pills, quinine, and brandy toddy; was then (afternoon of the 4th) lying in a half stupid condition; upon being aroused would talk hurriedly, but was rational. His breathing was laborious, with an uneasy sensation in the chest; respiratory sounds more intense than natural; pulse 91, full and compressible; very considerable deafness; other senses perfect. Tongue covered in the centre with a whitish fur; very slight tenderness upon pressure in the epigastric, and right and left hypochondric regions; skin inclined to be hot. Has had two discharges from his bowels during the morning, which were thin and light colored.—Blood to the amount of twelve ounces was taken from the arm, followed next day by twelve leeches to the anterior portion of the chest. The breathing was somewhat improved by the depletion. Prescribed nitrous powders every two hours until perspiration was produced; next day quinine and opium, 20 grains of the former, to 1 grain of the latter were given at a single dose, and repeated every morning for three days, when the fever began to yield. Three days subsequent to discontinuing the quinine and opium profuse watery discharges from the bowels came on, which had to be re-

strained by opium, acetate of lead, and a large blister over the abdomen.

July 12. Patient convalescent. I subjoin a partial analysis of the blood in this case, its completion having been defeated by the mistake of a medical friend and assistant.

| | |
|---|---|
| Temperature - - - - - | 100° |
| Specific gravity - - - - | 1028 |
| Fibrin, - - - - - - | .5 |

It is much to be regretted that this analysis was not perfected. The temperature was higher, by several degrees, than I have found it in chronic pneumonia and chronic rheumatism, in which the fibrin was nearly double the healthy standard, and yet in this specimen the fibrin is very greatly diminished.

July 27, 1846.

---

ART. IV.—*Notes on Medical Matters and Medical Men in London.* By DAVID W. YANDELL, M.D., of Louisville, Ky.

Mr. Walsh, author of a recent and successful work on *Cancer*, who is now lecturing on *Pathology* at the University College, is one of the best lecturers to whom I have yet listened in London. He is somewhat too rapid, and not sufficiently distinct, but he has life and animation which make up for other defects, keeping one awake while he is lecturing. Dr. Quain, who has distinguished himself by his anatomical works, as a lecturer is above the common run of professors, but neither he, Liston, Murphy, Thompson, nor Williams, of the University, nor Stanley, of St. Bartholomew's would be fancied by the majority of American medical students. Liston is a poor speaker; Cooper is but little better; Graham is considered excessively dull, and Thompson, now delivering a course of lectures on medical jurisprudence, certainly is so.

From all that I have heard, I am satisfied that, in manner, the medical teachers in America are superior to the English.

I saw, some days since, the great "*grinder*," Powers. He is a little round-faced, spectacled man, with an amiable, though not intellectual expression of countence, who, with a strange certainty, prepares candidates for a successful examination before the Apothecaries' Hall. He has now a class of one hundred and twenty, some of whom are taking first lessons; others are more advanced, while a few are being "rubbed up" for the final ordeal to which they expect soon to submit. I was told by a gentleman who passed the Hall not many months ago, that Powers asked him in the morning questions which were propounded to him by the board of examiners in the evening. Whether this was accidental or not he did not express an opinion; I have no doubt it was. The usual fee of the "grinder" is twenty-five dollars, and I believe is never less than this. Some years ago there was another Powers, also a popular "grinder," whose annual income is said to have been not less than £2,000, upon which he amassed such a fortune that he has been able to retire from business.

On the 9th of June I saw Mr. Liston perform several operations, one of which was tying the brachial artery for *false aneurism* of the hand. This is the case of which I made mention in my last letter, as being under treatment, by pressure, in the University College hospital. A young man, while shooting on "good Friday," had the misfortune to burst his gun, which tore off three of the fingers of his left hand, and inflicted an extensive and deep wound on the hand. While the wound was under treatment pulsation was observed in a small, filbert-like tumor situated near the centre of the palm. Mr. Liston advised pressure to the brachial artery, which was applied with very evident benefit, for a season, but after a time the pulsation in the tumor returned, and the patient becoming dissatisfied with the tardy process of cure insisted upon an operation, which Mr. Liston executed with his characteristic neatness and success.

Mr. Murphy I have mentioned as professor of midwifery in the London University, whose writings and practice have placed him in the first rank of English obstetricians. His lectures are full of instruction. I was much interested in one which he delivered a few days since on the causes of *tedious and difficult labor*. He does not regard *hydrocephalus* as so serious an obstacle to labor as it is esteemed to be by many accoucheurs. In the first place it does not follow, he maintains, that the cranium of the child with hydrocephalus is so distended with fluid that compression of the bones cannot be effected; for in many cases where the head was greatly increased in size he has found the bones movable and easily compressed. He cited in proof of his position the six cases of hydrocephalic children reported by Collins, of which only a single one caused a difficult labor. Dr. Robert Lee, however, attended five cases of a similar description in which all gave rise to tedious and difficult labors. Professor Murphy clears up this contrariety in men equally entitled to belief, by saying that Collins saw his cases in a hospital, where, having the management of them from the earliest stage of labor, he was prepared to meet and ward off any untoward symptoms that arose, while Dr. Lee saw his patients after they had been in the hands of midwives who probably did more harm than good, and only called him in to relieve them of their difficulties. If trouble does arise from this cause, it is when the head is at the brim of the pelvis, where various accidents may detain it; but when the pelvic cavity is once fairly attained delivery will take place. Should the head not clear the brim it is your duty to perforate it; the extraordinary size of the fontanels and the peculiar feel of the head rendering the diagnosis easy.

Prof. Murphy judges of the health of a child by the way in which ossification goes on, the age at which dentition begins, and the firmness of the osseous system. He has observed, that one of the obstacles to labor---increased ossification of the bones of the pelvis—is not met with in the upper classes of society, nor among the lower, in cities, but is found in a

rustic population, the females of which possess a masculine vigor of constitution, and in whom there is an abundant deposit of bony matter. He has remarked that the opposite cause to this—deficiency of ossific development—is met with in the poor of cities, among females of delicate constitutions, whose systems have never deposited bony materials in a normal quantity.

Prof. M. has been in the habit, for several years, of suggesting in his lectures an operation which has been three times lately performed by Dubois, and is henceforth to rank as one of the legitimate operations in surgery. In cases of contraction of the cervix uteri to an extent rendering labor difficult and dangerous, he proposes that incision into the neck should be practised. For this purpose the knife was used by Dubois, in some of his cases; but in others he deems the scissors preferable. Professor Murphy would be governed in the choice of the instrument by the nature of the case; where the cervix is far back he would use the scissors to relieve the posterior lip, but if it were forward and readily reached, he would resort to the knife. The knife used is the bistoury employed in removing the amygdalæ. The index finger of the left hand is to be introduced into the vagina, placing the palmar surface upon the spot where the incision is to be made; the bistoury is next carried along in contact with the finger until its point, passing within the cervix, comes in contact with the end of the finger. By means of a semicircular motion the cutting edge of the bistoury is then directed perpendicularly towards the free edge of the os tincæ; if this be tense the incision will be most easily effected by a sawing motion of the instrument. Prof. M. advises that the incision be made small, and if one is not found sufficient would make others. If the incision is to be made to the right, the right hand must be used instead of the left. The dilatation is generally sufficient in the course of a quarter of an hour after the operation to use the forceps, if it be desirable to terminate the labor by instruments.

The counter-indications to this operation are, thickening of the cervix, and attachment of the placenta near this part of the uterus. If the cervix has not become thin, the operation by inducing hemorrhage, or causing laceration from the extent of the incision, may terminate fatally instead of proving an advantage.

In his clinical lecture, some days since, Dr. Quain insisted that there is no such thing as purely spasmodic stricture of the urethra. In cases of stricture, after using fomentations to the lower part of the abdomen and perineum, a warm bath, tartar emetic, a saline purgative and opium, he recommends the introduction of a *soft* catheter, instead of the one commonly employed. He is in the habit of using an instrument of this description both in hospitals and his private practice, and he prefers a large catheter, which he has sometimes been successful in introducing after surgeons had failed to pass a small instrument. He can give no directions as to the manner of introducing the catheter, dexterity in this, as in nearly all the operations in surgery, depending upon practice. He advises students to carry a catheter in their pockets, and to take every opportunity to introduce it into the dead subject. Hold the instrument loosely, are his directions, and rather suffer it to pass by its own gravity than use any force to carry it forward. He spoke of two cases of retention of urine, one occurring in a young man in consequence of stricture; the other in the person of a man eighty years of age, produced by enlarged prostate, which, after existing for sometime, brought on paralysis of the bladder. In the young man the bladder could be felt above the pubis, round and well defined; in the man advanced in life this roundness was absent, and the outlines of the distended organ were not well defined. The urine in paralysis of the bladder is muddy, and, under the microscope, purulent. He injects the bladder in such cases with warm water to wash it out, and gradually reduces the temperature of the water until it is cold, which acts favorably in restoring the contractility of that viscus.

Erysipelas is at present prevailing in the University College hospital, where Dr. Quain lectures, but not to a serious extent; it had supervened upon the amputation of a great toe, and had followed a wound of the face. At certain seasons of the year, owing to the constitution of the atmosphere or some other cause, it attains an epidemic prevalence, seizing upon every wounded surface, and following the slightest operations. Dr. Quain has not much confidence in local applications in this affection; it is a constitutional disease and local remedies cannot reach it. When it follows upon wounds, he thinks it well enough to apply fomentations, which answer the good purpose of allaying pain; but as to all the other topical means, he has tried them without much benefit, and believes that *aqua fontana* is about as efficacious as *lotio plumbi*, or indeed anything else. In hospital practice he has abstained from depletory measures, and is in the habit of giving stimulants, the alcoholic drinks to which the patients are accustomed being preferable to wine, which hospital patients seldom or never use.

To-day I saw Mr. Morgan, of Guy's hospital, amputate the fore-arm for diseased carpus. He is a good operator, rather too slow, I should say, and not by any means striking. Guy's hospital was built by Thomas Guy, who left an immense property for its maintenance and support. Being a private institution, that is, not supported by private contributions or by government patronage, it publishes no report of the number of patients annually treated in it, and other statistics of the kind, which you see about the steward's office in the other hospitals. The number of beds averages five hundred, the wards being capable of containing more. Bransby Cooper, Key, and Morgan are the surgeons; Addison, Babington, and Barlow are the physicians, and Oldham and Lever the obstetricians. The school in connection with this hospital I should judge, from the manner in which the students are instructed in going round the wards with the physicians and surgeons, is one of the best in London. Powers, the grinder, I am informed, says "his best men are from Guy's."

The *régime* is different from that of the medical department of the London University; students and teachers are not at the same immeasurable distance from each other; more is said in the wards of the hospitals; more questions are asked by the pupils, and altogether more instruction given and received. There is a good class now in attendance at this school. Students attend four winter courses, and about eighty entries are made, yearly, which would give a class of two hundred and forty or fifty. Some years ago, when only those who had studied in London were eligible to the degree in the College of Physicians and Surgeons, the classes of this and all the other metropolitan schools were larger than at present, students from the provincial schools being now allowed to become candidates.

The museum at Guy's numbers nearly ten thousand specimens, eight thousand of which pertain to physiology and pathology, and the remainder to comparative anatomy.—There are also in the museum three thousand drawings illustrative of the different parts of the human system, besides about seven hundred diagrams. An artist is kept constantly employed in this department, at a salary of $2000 a year, and some of his work is highly creditable. The various forms of cutaneous disease he has represented so faithfully that students are afforded means of recognising and distinguishing between them, such as they will seldom meet with elsewhere. I saw several young men in the museum studying anatomy from the views in wax, which were spread out in glass cases; and a capital mode of study it is too, second only to dissection of the dead body, and, in this hot weather, far preferable to that. You see just in front of you, as you enter this apartment, "Silence is indispensable in a place devoted to study," in large letters. Were I a student at Guy's, I should be tempted to pass much of my time learning anatomy in this quiet, comfortable room.

St. Bartholomew's hospital is one of the largest and wealthiest of all the London charities. In common with all similar institutions here, it has an operating theatre, an anatomi-

cal museum, and a library attached to it. The museum contains three thousand specimens; the library has four thousand standard works; the number of its beds is five hundred and thirty, and in 1845 the number of its patients was forty-two thousand, of which five thousand five hundred were "in patients," and the remainder "out patients and casualties." Mr. Lawrence, who is surgeon extraordinary to the Queen is principal surgeon to Bartholomew's. As a writer of great ability Mr. Lawrence is well known in America, and at home he is esteemed one of the best educated and most scientific men in England. He has a fine intellectual face, and his manners are peculiarly bland, cordial and agreeable. Dr. Rigby is also connected with this hospital.

University College hospital is not on so large a scale as either Guy's or St. Bartholomew's. It is one of the hospitals supported by voluntary contributions, and was erected, and is sustained principally for the benefit of the medical college, which is situated immediately opposite to it. Notwithstanding its comparatively small size, it is an institution at which much is to be learned. The number of its beds is about one hundred and fifty, and an addition to it which will soon be completed will make room for fifty more. The number of "in patients" last year was thirteen hundred and seventy-nine; of "out patients" six thousand eight hundred and forty-six; of lying-in women attended at their own residences four hundred and eighteen; of casualties eight thousand three hundred and seventy-nine, making, in all, seventeen thousand and forty. Samuel Cooper, Liston, Quain, Morton, Taylor, Williams, and Murphy are connected with this hospital.

While noticing the public institutions in London connected with our profession I must say something of one of the most magnificent of these, the Hunterian Museum.

John Hunter died on the 16th of October, 1793, aged 65 years. In his will he directed his museum to be offered to the British Government on such terms as appeared reasonable, and in the event of refusal by the government, then to

be sold, in one lot, to a foreign State, or such purchaser as might offer. About 1799 Parliament appropriated the sum of fifteen thousand pounds for the purchase of the museum. An offer of the collection was first made by the government to the College of Physicians, but as the College was not wealthy it declined to receive it, and its example was followed by the Royal Society and the British Museum. Finally, it was tendered to and accepted by the College of Surgeons, which has gone on in the great work of which the museum of Hunter was the basis, until it has now a collection unequalled in the world. Mr. Lawrence speaking of the museum says, "so imperfectly was this creation of genius appreciated at that time, that the offer to the government was received very coldly, and six years elapsed before it was finally accepted. When it was mentioned to Mr. Pitt. then Prime Minister, he said, 'What; buy preparations? I have not money to buy gunpowder.'"

The main terms and conditions of the donation were briefly these:—1st. The collection shall be open four hours in the forenoon of two days every week for the inspection and study of the fellows of the College of Physicians, the members of the Company of Surgeons, and persons properly introduced by them; a catalogue of the preparations and an officer qualified to explain it being at such times always in the room. 2d. That one course of lectures, not less than twenty-four in number, on comparative anatomy and other subjects, illustrated by specimens in the museum, shall be given every year by some member of the Company. 3d. That the preparations shall be kept in as good a state of preservation as possible at the expense of the corporation. The museum is open to the fellows and members of the college and such individuals as they may introduce; to members of all the learned and scientific bodies in the United Kingdom; to students of medicine, and to learned and scientific foreigners. members of parliament, peers, &c.

In 1806 and subsequently parliament appropriated £27.-

500, and the College of Surgeons about an equal sum for the erection of an edifice to contain and exhibit the Hunterian collection. This was completed in 1813. The industry of the members of the College was such, that in 1835 the building had become too small to contain the additions which had been made to the collection and the rapidly increasing library, and the College came forward and subscribed £40,000 for the erection of the present immense edifice in which is to be seen the Hunterian and collegiate collections. The College up to this time has expended upon the museum, exclusive of incidental expenses, upwards of £70,000; and the annual charge for its support falls but little short of £3,000.

The Hunterian collection contained, in all, ten thousand five hundred and sixty-three specimens. Of these 963 pertained to osteology, 1345 to natural history, 1215 were fossils, 617 dry preparations, and 3745 preparations in spirits; constituting the *physiological* department. The *pathological* department contained of preparations in spirits 1084 specimens, dry preparations 625, monsters and congenital malformations 218, calculi and concretions 536, microscopic preparations of normal and abnormal structures 217. The members of the College have added 12,347 specimens to the museum; of which, in the physiological department, 2119 are osteological, 240 are dry preparations, 1998 are in spirits, 427 relate to natural history, and 1200 are fossils; and, in the pathological department, the preparations in spirits are 2142, the dry preparations 1365, the monsters and congenital malformations 187, calculi and concretions 884, and the microscopic specimens 1791.

The museum, through the liberality of its proprietors, is open four days in the week, instead of two, and under special circumstances visitors are often admitted on the other two. The library, consisting of works on all branches of medicine as well as the collateral sciences, embracing a great number of most costly books relating to natural history, amounts to 20,000 volumes; it is kept complete by the regular addition of new works, and affords every facility for

study, being open from 10 o'clock until 4 daily. The books have cost the College about £10,000, and the annual expense of the library is about £600. The average weekly number of visitors is one hundred and twenty. The Council, some years ago, instituted studentships, three in number, with salaries of £100 per annum, which are held for three years. The appointments are bestowed as the rewards of merit, the test being a strict examination.

The College of Surgeons was incorporated by a charter granted in 1800 by George III. Under her present majesty the charter has been amended, and the institution has taken the name of the Royal College of Surgeons of England. To this corporation the Hunterian museum belongs, and to it is also due the credit of having retained the inestimable "intellectual treasure created by the genius of one of her most gifted sons." The manner in which this trust has been augmented; the liberality with which the doors of the museum and library are thrown open to, I may say, every one; the order and talent displayed in the arrangement of the specimens—where, for example, fossil remains are placed in juxtaposition to the most nearly allied existing species, thus making the vestiges of a former world throw light upon the laws of organization—the excellence of the descriptive catalogues; the memoirs published by different members of the College, all testify in the strongest language to the intelligence, love of science, and indefatigable zeal of the governors of the institution. These are men who, by age and professional eminence, have entitled themselves to the management of its affairs.

It would take up an entire number of your Journal to give even a synopsis of the specimens contained in this mighty receptacle, each one with its label descriptive of what it is. The College is about publishing a catalogue of the pathological cabinet, which will contain, as far as it is known, the history of every patient whose case has furnished specimens to the collection. In this department, among thousands of other interesting things, is the sac of a *popliteal aneurism*,

from a man on whom John Hunter operated, at St. George's hospital, in December, 1785. This was the first case in which the operation for popliteal aneurism was performed according to Hunter's new method—tying the vessel on the anterior part of the thigh, at some distance from the diseased point, "thereby to diminish the risk of hemorrhage, and admit of the artery being more readily secured, should any accident happen." This sagacious surgeon was also of the opinion, that "the force of the circulation being thus taken from the aneurismal sac, the progress of the disease would be stopped; and he thought it probable that, if the parts were left to themselves, the sac with its contents might be absorbed, and the whole tumor be removed, which would render an opening in the sac unnecessary." The history of this interesting case is as follows:

The patient was a coachman, aged 45 years; the disease had first been perceived three years previous to his admission into the hospital, and had gradually increased during the whole of that period. He recovered from the operation and returned to his employment, but died from the effects of fever fifteen months afterwards. On examination after death, the cicatrix on the anterior part of the thigh was scarcely perceptible; the ham had no appearance of tumor, and, to the eye, was exactly like that of the other limb; but there was a solid tumor perceptible to the touch filling the hollow between the condyles. The femoral artery was impervious from the point where it gives off the arteria profunda as low down as the portion included in the ligature; and at that part there was an ossification for an inch and a half along the course of the artery, of an oval form, the rim of which was solid, becoming thinner towards the centre, and not bony but ligamentous. Below this part, the femoral artery was pervious down to the aneurismal sac, and contained blood, but did not communicate with the sac itself, having become impervious just at its entrance. What remained of the aneurismal sac was somewhat larger than a hen's egg, but more oblong and somewhat flattened, extending along the

artery a little way; it was perfectly circumscribed, not having the smallest remains of the lower orifice of the popliteal artery, and contained a solid coagulum adhering to its internal surface, and which appeared to be composed of concentric laminæ, uniform in color and consistence.

In the case containing urinary calculi, I observed one taken after death from the bladder of Sir Walter Ogilive, which weighed forty-four ounces Troy, and measured sixteen inches around its longer axis, and fourteen around its shorter. Dr. Powell analysed this calculus, and found it to consist of "the triple phosphate of ammonia and magnesia, with phosphate of lime, and a large quantity of animal matter."

I will mention only one other specimen—a tibia and fibula with a large osseous tumor attached. The tumor has grown almost entirely from the anterior and lateral parts of the upper two-thirds of the tibia; it is of an irregularly oval form, and measures ten inches downwards, about fourteen inches from side to side, and exactly one yard in its chief circumference. Its surface is for the most part smooth, and evenly covered by a very thin layer of compact osseous tissue. Its interior is constituted of coarse cancellous tissue, about as heavy as healthy bone. Its exterior is continuous with the surface of the tibia, the walls of which are expanded and drawn out at its base of attachment. The fibula is pushed outwards, and so compressed by the growth of the tumor, that it is in some parts nearly two inches in width, and hardly two lines in thickness. The limb was amputated at St. Bartholomew's hospital, and weighed, with the foot and its appendages, forty-two pounds. One never grows weary of wandering through this vast repository, where so much is to be seen illustrative of healthy structure, as well as of the ravages of disease; but I fear I have already wearied your readers with these details.

Every scientific traveler in London is attracted to the Royal Institution, not only as the theatre of Sir Humphry Davy's

great achievements in chemistry, but as the place where Michael Faraday is now engaged in lecturing. We are familiar with the name of Faraday at home, and I was impatient to hear him in his laboratory. I believe I cannot interest you more than by giving you some account of the institution to which he belongs, and of one of his remarkable lectures.

The Royal Institution of London, a charter for which was obtained in 1800 and confirmed ten years afterwards, possesses a laboratory for the promotion and advancement of chemical knowledge by original investigations and courses of practical lectures, a large library, and a museum, containing a mineralogical collection, composed chiefly of British specimens. The professorships of chemistry are at present occupied Mr. Brande and Dr. Faraday; Mr. John Lindley holds the chair of botany, and Dr. W. B. Carpenter that of physiology. The chair of natural and experimental philosophy is at this time vacant. Everybody, I suppose, has his notions of what constitutes a lecturer; according to my own, Faraday is, beyond all question, the best to whom it has been my fortune ever to listen. If rapidity without haste, fluency without verbiage, succinctness and earnestness, clearness and propriety of enunciation, and ease and grace of manner, are the attributes of an accomplished lecturer, then he is perfect. He is in size rather below the common stature, and, I should say, about fifty years old. The expression of his face is strikingly intelligent. He manipulates with the confidence, dexterity, and precision of a juggler, reminding one forcibly of feats by sleight-of-hand; such is the quickness and perfection of his experiments. I was told by an intelligent gentleman, who sat by my side, a week ago, listening to the last lecture of his present series, that he rarely ever fails in an experiment. The evening on which I heard him was occupied chiefly with illustrations of the *cohesive force of water*. He first spoke of water in its three conditions of solid, liquid, aeriform. Substances which appear perfectly liquid, and which would remain so for an indefinite length of time, if left in a perfectly quiescent state, become solid by

the slightest mechanical agitation of their particles. This he illustrated by the well known experiment of a solution of the sulphate of soda, which becomes instantly a crystalline mass on the slightest agitation, or by dropping into it a solid body, or simply pouring it from one vessel into another; but owing to the high temperature of the room this experiment was less successful than I have generally seen it.

Dr. Faraday alluded to the somewhat analogous condition in liquids and vapors, which was discovered by M. Cagnard de la Tour, and is known by his name. It is this:—under a sufficient pressure, and at a certain temperature, some liquids, and water among the rest, may be converted into gases which occupy no more space than the liquids themselves. The slightest attention to the properties of water will convince any one of the error of the common notion, that its particles possess no cohesive force. If you immerse a solid body in water, a portion of the water adheres to it; and this has been called by Dr. Daniell heterogeneous adhesion. But since only particular portions of the water can come in contact with the surface of the solid body, it follows that this adhesion can exist only between it and a mere film of water; and from their ability to resist the power of gravity it is obvious that the accumulated globules must be held together by a strong cohesive attraction between themselves. Numerous experiments may be performed to show this. Thus, by balancing a smooth glass plate, with a known area, at the end of a scale beam, and bringing this into perfect contact with the surface of some water, which is done by covering the glass with a thin pellicle of soap, it will be found that more than an equivalent weight is required to lift the glass, and that a mass of water is actually raised up before the plate is detached. Laplace conjectured, though, as Dr. Faraday holds, erroneously, that the force of cohesion between the water and the glass was indicated by the weight required to raise the plate. As only a thin film of water is in actual contact with the plate, only a small portion of its cohesive force is exerted. The weight required to lift the plate from

the water is, in fact, equivalent to the cohesive force existing among the particles of water themselves. Dr. Faraday did not mention the exact force necessary to lift a plate having an area of twenty-five inches, but the number of ounces is surprisingly great.

M. Henry has made the discovery that the boiling point of water may be raised from 212°, its ordinary boiling heat, to 275°, simply by so treating it that all its air shall be expelled. Were it not for the air contained in water, this fluid would not boil at 212°; and when ebullition did take place, the boiling would be like that of concentrated sulphuric acid, turbulent and attended with no little danger. It is therefore the air always present in ordinary water which renders the boiling process tranquil and safe. When the boiling point is raised to 275°, the temperature is equivalent to a pressure of three atmospheres. It is unquestionably the cohesive force of the particles of water among themselves that enables them to resist so high a temperature. This same force we see continually exerted in all those cases in which the liquid is repelled by the surface of solid bodies, where we find that it uniformly assumes the shape of globules. The dew is seen adhering to the grass and leaves in "pearly drops," globular in form.

Dr. Faraday still further illustrated the subject of cohesion by pouring water into a small cylindrical vessel composed of copper wire-gauze. The water remained in the basket as though it were not perforated by countless holes until, by shaking, the force of cohesion was overcome by the power of gravitation. A cup of wire-gauze, with very fine meshes, was next heated to a red heat, and some water poured into it; so long as the heat was preserved the water rolled over the surface, but the moment the temperature was reduced, the water began to escape through the meshes, forming, at the same time, a large quantity of steam. The lecturer alluded to the fact long known, that water may be kept upon a very hot surface without boiling, or generating steam in any appreciable quantity. He poured some water on a

plate raised to a white heat, and it rolled about as a globule of quicksilver would do, producing, so far as the eye could discover, no steam. This water was prevented, by a stratum of dry steam, from coming in contact with the heated surface, and had a temperature really below that of boiling and only 105° Fahrenheit. By cooling the surface to a certain point, contact between it and the water is induced, and then the latter passes off in volumes of vapor. Dr. F. substituted sulphuric ether for water, and the same result was obtained, except that the effect was more brilliant, from the ignition of the ethereal vapor, in the midst of the flame of which a globule of the liquid was seen dancing over the heated surface, but not actually touching it. When the vessel was somewhat cooled, the ether coming in immediate contact with it, a much larger quantity of vapor was formed, and an increase in the size of the flame took place, showing even more clearly than the former experiment, that at a very high temperature the fluid is repelled from the surface of the heated plate. This is termed the *spheroidal state* of liquids, and it is on this principle that Boutigny *froze* water in a *red-hot* crucible.

Dr. Faraday repeated this experiment in the following manner:—into a red-hot crucible he poured a quantity of anhydrous sulphurous acid, to which he added subsequently an equal quantity of water. According to the law to which I have just alluded, no contact could exist between the liquids and the heated surface, and the sulphurous acid, boiling very rapidly at a temperature of 14° Fahrenheit, produced so much cold as to freeze the water. The water was hardly added before a lump of ice was turned out of the crucible, the water being frozen by the boiling of the acid. Anhydrous sulphurous acid becoming spheroidal at so low a temperature, it is not necessary to heat the crucible very hot, since the temperature of all liquids in the spheroidal state is a few degrees below their boiling point.

The last, and by far the most brilliant experiment of the

evening, was one which the learned professer performed for the first time before the public on that occasion, and consisted in freezing *mercury* in a red-hot crucible. This he effected by the following simple arrangement:—having heated a platina crucible to the requisite temperature he dropped into it a few lumps of carbonic acid, and added a quantity of sulphuric ether; thus he obtained a freezing mixture in a spheroidal state, equal in the air to a cold of 160° below the zero of Fahrenheit. The ethereal vapor was not inflamed, although the crucible was red-hot. A ladle, containing a globule of mercury, was now immersed in this mixture, and in a short time taken out with the quicksilver as solid as a leaden bullet. A more beautiful experiment one could hardly hope or desire to see. Very many of Dr. Faraday's intelligent looking audience were ladies, who during the evening manifested the liveliest interest both in the remarks and the experiments of the professor. I felt myself surrounded by the pure, the refined, and the great of London, and shall long remember the evening as one of the most delightful of my life. I saw Mr. Brande, a fine looking gentleman, and many other distinguished *savans* in the auditory.

I saw, yesterday, an examination of the body of a man whose case I had watched in the hospital with unusual interest. The patient, 42 years old, had suffered for nine months with difficulty in voiding his urine; his general health was gone; his physicians had diagnosed a lumbar abscess of very large size pointing towards Pourpart's ligament.

I was present when Dr. C. J. B. Williams, after a careful and acute examination, pronounced his disease an abscess of the kidneys. In a week or two afterwards he commenced expectorating pus, and died in a few days. The *sectio cadaveris* revealed an abscess of the left kidney, by which the whole of that organ, except a small part of its cortical substance, had been destroyed, and a lumbar abscess which involved more than one-third of the great psoas muscle. The matter from the kidney had made its way along

the vertebral column, through the diaphragm, and into the lungs, from which it was freely expectorated.

Mr. Ferguson, of King's College, is the most formidable rival Mr. Liston has in London. Like Liston he is by birth a Scotchman, and like him of a fine personal appearance, with an intelligent face, and great suavity of manners. He is about 38 years of age, and is in a fair way to attain greater eminence as a surgeon than he has already won. But it is as an operating and not as a lecturing surgeon that he is acquiring distinction; his powers as a lecturer would never raise him above mediocrity.

The London Lancet is out upon Dr. Elliotson with almost savage severity. As it will be sometime before you receive your copy, in order that you may see how doctors on this side of the great waters write concerning one another, I will give you an extract from an article which I read in a late number of that Journal.

"After a disappearance from University College and a long submergence in the depths of quackery, the mesmerist (Dr. Elliotson) made his appearance on the professional stage on Saturday last. He rises again to the surface not like the diver with pearls in his hands, but with the mud and weeds of the lowest depths about his brow—a by-word, a hissing and a reproach to his brethren. Does he himself treat the harlotry which he dares to call science with respect? Let the profession consider his allies and assistants, taken from the pert folly of the nobility,—the weakest among the literary people, high and low ladies, quack clergymen, itinerant lecturers and exhibiting buffoons. Look at that more than all-damning fact in the cases of this man, his violation of the sacredness of death itself, when he took the O'Keys to the beds of the dying in the University College hospital, and tortured them at the awful moment of dissolution by the half frenzied half hysterical ravings of these tricksters. And this is the man who dares institute comparisons between his own nothings and the great deeds of Harvey!"

Within a few days I have seen the thermometer in the shade as high as 93°. This would be accounted hot weather anywhere.

London, June 25th, 1846.

from biliary derangement. We have come, pretty generally, to regard the bile as something more than an excretion; or as having something more to do than merely be "pumped" out of the liver by purgatives. Dr. Simon says:

"Bilin and urea can hardly be regarded as simultaneous products of the metamorphic action of the blood; for while I have detected small quantities of urea in the blood of a healthy calf, I have never been able to recognise the least trace of bilin or of bile-pigment. Hence, while urea is produced not only in the kidneys but in other parts of the system, bilin seems to be produced and secreted only in the liver."

What are its precise agencies in the complex operations of the animal body physiologists are far from being satisfied; and indeed chemists are very far from being agreed as to what is its precise composition. It is by no means an easy matter to arrive at satisfactory conclusions on this subject. Remarks Dr. Simon:—

"An accurate quantitative determination of the most important ingredients of the bile, although difficult, is by no means impracticable. It is, however very uncertain whether the result of the analysis would afford any insight into the true character of that changeable secretion. From the latest researches of Berzelius, it appears that the bilin is so unstable a compound, that it is hardly possible to obtain bile in the condition in which it is secreted by the liver, or as it exists in the gall-bladder; for when bile is left to itself, and much more when it is acted on by heat and other more or less energetic agents, the bilin undergoes a series of metamorphoses by which fellinic, cholinic, and very probably also cholanic and fellanic acids are produced. The biliary secretion, as it exists in the liver, may be regarded as pure bilin mixed with biliverdin and fats; the bilin probably commences its metamorphoses in the gall-bladder, and continues them in its passage onwards into the intestinal canal. If fellinic and cholinic acids are formed in the gall-bladder, then the presence of the two bilifellinic acids in fresh bile may be at once assumed, since they are only to be regarded as combinations

of the former with different proportions of bilin. It is not by any means probable that cholic acid exists in fresh bile, and the presence of dyslysin and taurin may be positively denied; consequently, the biliary resin, the mixture of fellinic and cholinic acids and dyslysin does not pre-exist in the bile."

In a note the editor adds the following remarks concerning the destination of the bile:

"That the bile is not merely an excrementitious fluid, intended to remove effete matter from the blood, but that it is a secretion essential to the animal economy, was rendered almost certain by the experiments of Berzelius, Theyer, and Schlosser, which showed that the human fæces contained much too small a quantity of a substance resembling bile to justify the idea that it is evacuated in this manner. A further proof that the bile is absorbed and not excreted, is afforded by an examination made by Enderlin, of the ash yielded by the contents of the different portions of the intestinal canal of a hare. He found that the ash from the contents of the duodenum alone effervesced on the addition of an acid, thus showing that the choleate of soda (which yields the carbonate by incineration,) is absorbed before reaching the jejunum. Schwann has recently established this opinion beyond a doubt, by a series of well-devised experiments on dogs. He tied the ductus communis choledochus, and at the same time formed a fistulous opening in the gall-bladder, by which the bile escaped externally. His most important conclusions are—

"1st. That when the bile does not get into the bowel, its absence is generally perceptible in dogs, about the third day, by a marked diminution in weight.

"2dly. That unless the channel for the conveyance of the bile to the duodenum be re-established, symptoms of deficient nutrition, wasting, debility, &c., ensue, and death is the ultimate consequence."

The section on the *gastric juice, digestion, and the chyme*, is one of great interest, and has been carefully elaborated. What is gastric juice? is a question often propounded, and never yet satisfactorily answered, as appears from the following paragraph:

# REVIEWS.

---

ART. V.—*Animal Chemistry with reference to the Physiology and Pathology of Man.* By Dr. J. FRANZ SIMON, Fellow of the Society for the advancement of Physiological Chemistry. etc., etc. Translated and edited by GEORGE E. DAY, M.A.&L.M., Cantab.; Licentiate of the Royal College of Physicians. Philadelphia: Lea & Blanchard. 1846.

On a former occasion, in a notice of the first part of this work, we expressed the high estimate in which we held it, and deem any further commendation of it at this time unnecessary. The second part which has just been published, and a copy of which has been sent to us by the publishers, completes the work, making a volume of more than seven hundred pages. The size of this treatise will be objectionable with many readers. It will require some resolution to sit down to a volume of such dimensions made up in great part of tables of analysis; but if not many will thus engage in its regular perusal, few, we should suppose, would be willing to be without it as a work for reference. The part just issued contains ten chapters and an appendix, which treat of the secretions of the chylopoietic viscera and the theory of digestion; milk; secretions of the mucous membranes; secretions of the external skin; the urine; secretions of the lachrymal, meibomian and ceruminous glands; secretions and fluids of the generative organs; the intestinal excretion; the component parts of the animal body; solid morbid products; fluid products of disease. Besides these, many other subjects are

presented in the appendix, from which it will be seen that the volume covers the whole chemistry of man.

The saliva is an insipid fluid; destitute of odor, and of very feeble chemical reaction, which would incline one to suppose that it could not possess much scientific interest; but it appears on closer examination to be a somewhat composite fluid. The amount of solid residue in it is small, but small as it is, it affords on analysis "fat, ptyalin, water-extract, spirit-extract, a little albumen, certain salts, and a trace of sulpho-cyanogen." The saliva, according to Berzelius and Müller, takes no active part in the process of digestion. Liebig supposes that one of its offices is to carry oxygen into the stomach, which takes part in reducing the food to the state of chyme. The offices performed by saliva in the animal economy are stated by Dr. Wright to be:—"*Active.* 1. To stimulate the stomach and excite it to activity by contact. 2. To aid the digestion of food by a specific action upon the food itself. 3. To neutralize any undue acidity in the stomach by supplying a proportionate alkali. *Passive.* 1. To assist the sense of taste. 2. To favor the expression of the voice. 3. To clear the mucous membrane of the mouth, and to moderate the thirst." Saliva seems to possess the power of converting boiled starch into sugar, and in this way has some agency in digestion.

The bile is a much more composite fluid, and one which has been a great deal studied. The interest of this secretion to the medical man is greater than that of most others of the animal economy, because of its intimate bearing upon health and disease. In all ages of medicine the bile has been regarded as the secretion especially involved in a long train of human infirmities both of the body and the mind. Horace complains of the effects of his "difficile bilo," and the maladies which have been ascribed to the presence of "black bile" in the body are almost without number. We are attaining to something more like precise knowledge respecting the uses of this secretion, and have, at least, become persuaded that half the disorders of the human body do not arise

"The gastric juice has been examined by numerous chemists, in consequence of the importance attributed to it in the process of digestion. There have been found in it free acids, a considerable amount of salts, and certain indefinite animal substances, which were known at the period to which we refer as osmazome or salivary matter. Experiments on artificial digestion have thrown much light on the nature of the gastric juice. Eberle proved that artificially-formed gastric juice does not thoroughly dissolve food, unless a small quantity of gastric mucus, or a portion of the mucous membrane of the stomach be added to it. On the strength of this discovery, Müller and Schwann instituted a series of experiments, from which Schwann was led to conclude that the gastric juice contains a peculiar substance, which, co-operating with an acid, possesses the property of dissolving substances insoluble in mere water, or in a mixture of extractive matters, salts, and a little acid, as for instance, fibrin, coagulated albumen or casein. To this somewhat problematic substance he gives the name of *pepsin:* Wassmann and Pappenheim have endeavored to isolate it."

Since Dr. Simon's labors ceased, the process of digestion has called forth several investigators, and elicited a multitude of experments, to some of which we have heretofore alluded. Blondlot's treatise on digestion promises to take a high rank among the works of which this difficult subject has been so fruitful. It is quoted largely by Dr. Dav in the volume before us. According to this writer—

"M. Blondlot believes that the digestive property of gastric juice depends, not on its obvious chemical constitution but upon a peculiar organic principle. If exposed to a temperature of 104° to 122° F., or higher, it loses entirely and irrevocably its digestive powers, although to all appearance, and even as to its composition, as made known by analysis, it remains unchanged. With the exclusion of the air, gastric juice may be kept for two years without loss of activity; but with the free access of air, it putrifies in five or six days, although the chyme which it forms from nitrogenous organic substances may be preserved for two or three months without change. The precipitation of all the lime it contains does not affect its activity, nor are its chlorides

indispensable, but whatever acts upon its organic constituents, (heat, strong alcohol, or strong acids,) or which removes them, (such as animal charcoal, chlorine, tannic acid, or acetate of lead,) destroys all its digestive properties.

"M. Blondlot also shows—*a.* That coagulated albumen resists the action of the gastric juice only from its compact form. When coagulated in very small particles, as the white of an egg beaten into a froth and poured into boiling water, it is digested as quickly as soft fibrin. *b.* That the action of the stomach in coagulating milk is not due to its digestive principle solely, but to its acid, which acts like lactic acid. *c.* That the effect of the gastric fluid upon bones, whether entire or not, is to disintegrate them slowly, beginning at the surface, and to reduce the earthy matter into a fine chalky powder, but without dissolving or decomposing it. The earthy matter not being dissolved, proves that no hydrochloric acid has acted upon it; it is all discharged with the fæces."

Since the publication of Blondlot's work, Bernard and Barreswil, two French chemists, have published the result of their experiments on the gastric juice. They assume that this fluid owes its digestive properties to the union of two principles—an acid, and a peculiar organic matter destructible by heat. Their views are set forth in the following passages:

"The principal fact which has been adduced to prove that the acid reaction is owing to the presence of biphosphate of lime is, that it may be treated with carbonate of lime without effervescence. Our experiments show that this arises from the dilution of the acid, which allows the carbonic acid to be dissolved as it is formed. When, therefore, the gastric juice is concentrated, it causes a considerable effervescence with chalk. Moreover, gastric juice dissolves neutral phosphate of lime, whilst this salt is entirely insoluble in a solution of the biphosphate. On distilling gastric juice, the first distillate exhibits no acid reaction. If a mere trace of acetic acid or acetate of soda is added previous to distillation, it gives no acid reaction; the normal acid is not therefore acetic. This also appeared, at first sight, to prove it could not be hydrochloric acid; but on distilling water rendered slight-

ly acid by hydrochloric acid, nothing passes over at first but pure water, the acid not distilling until the end of the operation. On distilling gastric juice, a neutral limpid liquor passes over, which is not precipitated with nitrate of silver; when about four-fifths has distilled over, the distillate is perceptibly acid, nevertheless, it does not render a solution of nitrate of silver turbid; but at the end. and when only a few drops of the gastric juice remain in the retort, an acid liquid passes over which precipitates salts of silver; this is, doubtless, hydrochloric acid. Does this acid exist free in gastric juice, or has a chloride been decomposed in this operation? When the least trace of oxalic acid is added to gastric juice which we know contains lime, a turbidity is produced from the formation of an insoluble oxalate of lime; but if to water acidified with 2000ths of its amount of hydrochloric acid, and containing chloride of lime, the same reagent be added, no turbidity ensues. This clearly proves that hydrochloric acid exists as a chloride in the gastric juice, and not in a free state.

"When concentrated by evaporation, gastric juice is highly acid, effervescing with chalk, and not losing its acid reaction in the presence of an excess of the chalk. This proves the presence of phosphoric acid. On saturating the acid with lime and oxide of zinc, and filtering the solution, the neutral filtrate contains both zinc and lime, therefore phosphoric acid is not the only free acid in the juice. What is the acid combined with the zinc and lime in the filtered solution? It is one which, as we have seen, passes over at the end of the distillation, and does not precipitate salts of silver. These characters belong to lactic acid. On distilling water slightly acidulated with lactic acid, a small quantity of chloride of sodium being added, we obtain a fluid analogous to gastric juice; first, pure water passes over, then an acid which does not precipitate salts of silver, and the last drops carry over hydrochloric acid. So that it is evident that the presence of hydrochloric acid in the last product of distillation of the gastric juice is owing to the decomposition of the chlorides by lactic acid."

What the acid in the stomach is which seems to be concerned in digestion, the same authors attempt to determine. They believe it is not hydrochloric or acetic acid, nor indeed any particular acid; for although they always found the lac-

tic present in the gastric fluids, they do not believe that the digestive powers of the gastric juice are owing to this acid. They conclude, as the result of their researches, that if an acid reaction be indispensable at all, other acids may take the place of the lactic. The digestive power of the fluids of the stomach they hold to depend upon the presence of a peculiar organic matter, the properties of which are as follows:—

"It is precipitated and destroyed at a temperature of 190°. One of the most remarkable of its properties is that its digestive powers vary according to the medium in which it is contained. In the gastric juice, which is acid, it dissolves nitrogenous matters, such as fibrin, gluten, and albumen; but exerts no action on baked starch; but if the gastric juice is rendered alkaline by the addition of a little carbonate of soda, it rapidly dissolves the starch, and no longer possesses the power of acting on the nitrogenous matters. As these physiological properties are exactly those of saliva and the pancreatic fluid, it became an interesting point to ascertain if a change in the reaction of these fluids would cause a corresponding variation in their solvent power. This was found to be the case; on acidulating these naturally alkaline fluids, their ordinary mode of action was inverted, and they were enabled to dissolve nitrogenous matters, while their capability of dissolving starch was lost. From numerous and varied experiments they believe that one and the same organic principle (the agent of digestion) exists in the gastric juice, the pancreatic fluid, and the saliva, and that its physiological action varies according to the acid or alkaline nature of the fluid in which it occurs."

Our notions concerning the process of digestion are still in a most unsettled and crude state; we have, indeed, very little knowledge of the changes which the different elements of food undergo in becoming what we style chyme. It is embraced in the following summary of our author:

"1. Albumen is dissolved and chemically changed. This observation was made by Eberle, and has been confirmed by Müller, Schwann, and others. The digested albumen no

longer coagulates at the boiling point; it is stated to have been changed into osmazome and salivary matter, (a vague statement requiring further proof,) and according to Schwann, into a third albuminous principle, which is thrown down by carbonate of soda, and in that condition is insoluble in water and spirit, soluble in muriate of soda, and not precipitable by acetate of lead or alcohol, but copiously by nitric acid and bichloride of mercury, and partially by ferrocyanide of potassium and tannic acid.

"2. Coagulated casein is partially converted by artificial digestion into albumen; soluble casein becomes coagulated when submitted to the action of a solution of sugar of milk and pepsin, but not when acted on by the pepsin alone.

"3. Fibrin is rapidly dissolved, and, from the experiments of Tiedemann and Gmelin, appears to be partially converted into albumen.

"4. Glutin becomes so changed by artificial digestion, that it loses its property of gelatinizing, and can no longer be precipitated by chlorine.

"5. Sugar of milk, when submitted for a sufficient time to the action of pepsin, becomes completely converted into lactic acid. This fact has been established by Fremy and myself.

"6. Starch is partially converted into sugar. (Tiedemann and Gmelin.)

"7. The fluid found in the stomach of a horse, fed with oats, contained butyric acid, a resin, a substance resembling extract of flesh, salivary matter, and albumen."

The celebrated William Hunter was among those who held the digestive process to be one essentially vital, and in addressing his class on the subject he is reported to have used the following language:—"Physiologists will have it, gentlemen, that the stomach is a mill; others that it is a fermenting vat; others again that it is a stew pan; but in my view of the matter, it is neither a mill, a fermenting vat, nor a stew pan, but a *stomach*, gentlemen, a stomach." But this lucid view of the matter has not been universally adopted. There are those who still hold that a stomach is not quite indispensable to the business of digestion. Dr. Simon, from the following, seems to be of that number.

"From recent experiments on digestion, we know that alimentary substances are dissolved as rapidly in an artificial digestive fluid, consisting of pepsin and properly diluted muriatic acid, as they are in the gastric juice itself. Hence we are justified in the conclusion that pepsin, the free acid, and a suitable temperature, are the principal agents in gastric digestion, and that the motions of the stomach are chiefly with the view of promoting the due admixture of the food with the secreted fluid, and of propelling it towards the pylorus, through which it must pass in order to enter the duodenum. It is impossible to state with certainty whether the pepsin and free acids dissolve and modify the food through a catalytic influence, or whether they enter into any chemical combination with it, the products of these combinations being the dissolved and changed matter. If, however, the conversion of sugar of milk into lactic acid is explained by the catalytic action of the pepsin, we may fairly conclude that the pepsin exerts a similar influence on other substances, if no facts to the contrary present themselves. Hünefeld is inclined to attribute considerable influence in digestion to the ammoniacal salts of the gastric juice, in consequence of having observed that under certain conditions fibrin is readily soluble in the muriate or lactate of ammonia, especially when free lactic acid is also present."

It has always appeared to us somewhat inconsistent in the advocates of the vital theory of digestion to insist upon the power of the gastric juice to digest the stomach after death, and at the same time deny that it can digest other matters by virtue of its mere chemical attributes. If it can dissolve the coats of the stomach when the principle of life is no longer present to protect them, why not dissolve the food in the stomach independently of the vital principle? Vitality is most clearly out of the question in one case; why suppose its presence and co-operation necessary in the other? Digestion, where the stomach is the subject and not the agent, is chemical, beyond the possibility of a cavil; why not allow, then, that it is chemical also in all the cases where, not the stomach, but its aliment, undergoes the change? It is not philosophical to multiply causes. If chemistry is adequate to

the process in one case, we see no room to question that chemical action is present in all.

We do not propose to follow the author through all his analyses, and shall therefore pass unnoticed many chapters which seem of subordinate importance. The perspirable matter is one of the secretions which the physician never overlooks, and all that can be known respecting it has interest for him. Dr. Simon has the following observations in regard to morbid sweat.

1. *The quantity of the sweat is sometimes increased in an extraordinary degree.*

"Thus critical sweats are usually very abundant, continuous, and watery, in intermittent fevers, in rheumatic affections, and in colliquative disorders.

"2. *The quality of the sweat is changed.*

"*a.* The sweat may be distinguished by a peculiar odor. The sweat of persons with the itch is said to have a mouldy odor, while that of syphilitic patients is said to smell sweet. The sweat of rheumatic and gouty persons has an acid smell, while in putrid fever and scurvy, it has a putrid odor; in jaundice it is said to resemble musk in its smell. In Stark's General Pathology, (p. 1126), we find it stated that the odor of the sweat in scrofula resembles that of sour beer, while in intermittent fever it smells like fresh baked brown bread. The determination of odors is, however, very subjective, and (with a few exceptions) it is more than probable that different observers would detect different resemblances.

"*b.* Some of the normal constituents may be abnormally increased.

"1st. *The free acid of the sweat may be increased.* Lactic acid, which is the ordinary free acid, is usually increased in cases of rheumatism and gout; the sweat in these diseases has a strong acid reaction. When there is also an acid odor acetic acid is present. Prout has found free acetic acid in the sweat of a person suffering from hectic fever. After an attack of acute rheumatism, the joints of the feet remained swelled, for which potash baths were ordered. These baths, in the course of three weeks, brought on an attack of ecze-

ma, extending as high as the knee. The sweat from the feet had then a decided odor of acetic acid, which became more strongly developed when they were sharply rubbed. Anselmino found free acetic acid in the sweat of women during their confinement; and, according to Stark, the quantity of free lactic acid is increased in the sweat during scrofula, rachitis, and certain cutaneous eruptions.

"2d. *The ammonia of the sweat may be increased.* Anselmino found a larger proportion of (free?) ammonia in the sweat after an attack of gout than in any other case. Berend states that the sweat in putrid and typhus fever is ammoniacal; and in nervous diseases(?), according to Nauche, it becomes alkaline. All sweat with a putrid odor probably contains free ammonia.

"3d. *The salts may be increased.* Prout observed that in the case of a man with dropsy the skin became covered with a white saline crust of chloride of sodium, after an abundant perspiration. Anselmino found in the sweat, after a severe attack of gout, more salts than usual. In cases of gouty and urinary concretions, the quantity of phosphate of lime appears to be increased.

"c. Abnormal constituents may be present in the sweat.

"1st. *Albumen* has been observed by Anselmino in a critical sweat, which broke out in large quantity one evening over the whole body in a case of febris rheumatica, with severe pains in the joints; on the following day it had disappeared. Stark asserts that albumen may be found in the sweat in gastric, putrid, and hectic diseases, and also on the approach of death, in consequence of the abnormal solution of the solid constituents. I failed in detecting any certain indications of albumen in sweat collected (by means of linen washed with distilled water) from the breast of a person in the colliquative stage of tubercular phthisis.

"2d. *Blood or its constituents.* Voigtel observed an instance of bloody sweat from under the arm of a young man; it appeared after any violent exertion. In scurvy, putrid fever, and typhus icterodes, bloody sweat has likewise been observed.

"3d. *Uric acid* is stated to have been found in the sweat of arthritic persons (Stark). Wolff found that the sweat which had hardened on the forehead into a solid white substance, (in a patient with stone in the bladder), contained uric acid. Urate of soda is likewise stated to have been found in the sweat of persons suffering from gout or stone.

"4th. *Bilin and biliphæin* have been found in the sweat of persons with jaundice, and sometimes in such large quantity as to color the linen yellow, and to communicate a bitter taste to the perspiration. According to Berend, the sweat in febris putrida biliosa likewise contains bile-pigment.

"5th. *Red coloring matter of the urine* (*uroerythrin*) was found by Landerer in sweat from the axilla of a fever patient. A blue coloring matter, doubtless allied to cyanurin, has occasionally been observed in the sweat. Dr. Bleifuss has seen blue sweat from the foot of a patient with disease of the abdomen. Michel has likewise observed it in an hysterical woman and in a hypochondriacal man; it was most marked on the right side of the body. Billard observed a blue sweat on the upper part of the body of a girl.

"6th. *Fat* is stated to occur in colliquative hectic sweats.

"*d.* Substances altogether foreign to the animal organism may be conveyed, through the process of digestion, into the blood, and then occur in the sweat.

"Landerer has observed in his own person that after taking large doses of quinine, the sweat assumed a bitter taste of the drug. The following substances enter into, and have been detected in the sweat; sulphur, mercury, iodine, iodide of potassium, asafœtida, garlic, saffron, olive oil, rhubarb, indigo, prussian blue, and copper. (Stark, General Pathology, p. 1127; Baumgärtner, Elements of Physiology and Therapeutics, p. 486.)

"Many of these statements, regarding the change undergone by the sweat in disease, are fully confirmed; some must, however, still be regarded as doubtful."

A hundred and eighty-two pages of this volume are taken up with the consideration of the urine, one the most complex secretions of the animal body. Still, our author remarks, the relative proportions of its different constituents are not very variable. The following are stated to be the ordinary constituents of healthy human urine: "Urea; uric acid; [hippuric acid;] extractive matters, embracing alcohol-extract, spirit-extract, and water-extract, with their respective constituents; mucus; brown coloring matter of the urine (hæmaphæin); red coloring matter of the urine (uroerythrin); carbonic, lactic, hydrochloric, sulphuric, phosphoric, silicic, and hy-

drofluoric acids; soda; potash; ammonia; lime; magnesia; and peroxide of iron."

The qualitative analysis of urine is not difficult, many of its elements being easily detected; but some are discovered only by isolating them, which requires a more thorough analysis. The specific gravity, which throws a good deal of light upon the character of the urine, may be accurately and very conveniently determined by the ordinary 1000-grain bottle, which physicians would do well to make a part of their shop-furniture. This bottle is used with convenience in examinations of the blood, the specific gravity of which it is often of consequence to determine.

The urine must vary in its constitution with the nature of the food taken by the individual. It is not the same under a diet of animal matters, as when the food is vegetable. Numberless soluble substances reach the urine from the alimentary canal, and affect its color, taste, and odor, as well as its chemical properties. It is acid under certain circumstances, and under others alkaline. And what is still more curious, it often contains a larger quantity of certain salts than was to have been found in the food of the individual. The sulphates, for example, are frequently found in excess in this secretion, having come from the oxidation of sulphur in the animal economy, sulphuric acid being developed, which, uniting with the bases, affords these salts. Something analogous to this we see going on in nature around us every day, where *sulphuret* of iron becomes the *sulphate* of iron by oxidation in the atmosphere. As this slow combustion of sulphur and iron is attended with the formation of sulphuric acid and a sulphate, so in the animal economy the sulphuret of potassium becomes the sulphate of potash by imbibing an additional dose of oxygen. The following remarks of Dr. Simon on this subject will be read with interest:

"It is clear that the excretion of a salt taken with most of our articles of food, must be entirely dependent on the quantity consumed, and must therefore vary very considerably.

The urine, generally speaking, is deficient in salts during disease: our analyses show that the deficiency occurs at the expense of the chloride of sodium: the sulphates and the phosphates taking only a small part in it. I have analysed urine in typhus which contained a mere trace of chloride of sodium.

"Lecanu observed differences similar to those we have just noticed in alkaline sulphates and phosphates. The quantities excreted in twenty-four hours not only varied in different persons, but also in the same person at different times. From my analyses, and those of Lehmann, it appears probable that a connexion subsists between the quantity of urea and of the sulphates, and possibly of the phosphates likewise; that is to say, the sulphates always increase with the urea, and *vice versa*. I incline, therefore, to the opinion of Berzelius, that at least a portion of the sulphates and phosphates owe their origin to the oxidation of sulphur and phosphorus, previously associated with protein which has become changed during the active metamorphosis of the blood. We do not, however, mean, in making this statement, to deny that the salts are also supplied to the blood by the food, and again separated by the kidneys.

"The five following results, of much importance in physiology, have been deduced from the admirable researches of Lecanu:

"1. The quantity of urea excreted by the same person during equal periods is constant.

"2. The same is the case with respect to the uric acid.

"3. The quantities of urea and uric acid excreted by different persons during equal periods are variable.

"4. The varying amounts of urea excreted during equal periods by different persons, bear a relation to age and sex.

"5. The amount of fixed salts varies in different persons without reference to age or sex. It also varies in the same person during equal periods.

"An observation simultaneously made by Lehmann and myself, appears to me of high physiological import. We have ascertained that the amount of the urea, as well as of the sulphates, is increased by strong bodily exercise. I produced this state by taking such violent exercise for two hours that the pulse continued for some time above 100."

We append his summary in which the leading facts established by the researches of chemists are given in few words:

"To sum up once more: the urine is most abundant in urea, uric acid, and the most important salts, in men in the prime of life; it is less rich in these constituents in women, while the minimum occurs in old men and children. The nature of the food exerts an influence upon the composition of the urine; the amount of urea is increased by an excess of nitrogenous food, and diminished after living on food deficient in nitrogen. Upon a diminution of the quantity of food, the urine becomes deficient in nitrogen, as has been shown by my own experiments and those of Lehmann; but the separation of nitrogenous compounds, as for instance urea, through the urine, occurs even when no food is taken. The urine is most abundant in urea and sulphates after active bodily exercise, in consequence, doubtless, of increased vascular excitement. The quantity of urine discharged in 24 hours, amounts on an average to about 45 ounces. It is more abundant in the prime of life than in old age or childhood, and in the male than in the female sex."

Our author next proceeds to the consideration of the urine as affected by disease. The pathological changes may be reduced to one of the following forms: 1. One or more of the normal constituents of the urine may be in excess. 2. One or more of these may exist in less quantity than in healthy urine. 3 A normal constituent may be absent. 4. Substances not natural to the urine may be present. Something may be inferred respecting the constituents of the urine from its appearance. Simon says—

"I have already observed that the proportion of solid constituents to the water is so very variable, is so dependent upon the vicarious action of the skin and lungs, and upon the quantity of fluid that has been taken into the system, that it is impossible (without taking other facts into consideration) to determine from the urine alone, whether a mere increase or decrease of the solid constituents is due to diseased action. Pale urine, more or less like water, may be fairly considered deficient in solid matters, while a deep brown color is indicative of an abundance of these constituennts.

"The specific gravity, and still more the determination of the solid constituents in the manner which has been already described, will give the required information. The color of

the process in one case, we see no room to question that chemical action is present in all.

We do not propose to follow the author through all his analyses, and shall therefore pass unnoticed many chapters which seem of subordinate importance. The perspirable matter is one of the secretions which the physician never overlooks, and all that can be known respecting it has interest for him. Dr. Simon has the following observations in regard to morbid sweat.

1. *The quantity of the sweat is sometimes increased in an extraordinary degree.*

"Thus critical sweats are usually very abundant, continuous, and watery, in intermittent fevers, in rheumatic affections, and in colliquative disorders.

"2. *The quality of the sweat is changed.*

"*a.* The sweat may be distinguished by a peculiar odor. The sweat of persons with the itch is said to have a mouldy odor, while that of syphilitic patients is said to smell sweet. The sweat of rheumatic and gouty persons has an acid smell, while in putrid fever and scurvy, it has a putrid odor; in jaundice it is said to resemble musk in its smell. In Stark's General Pathology, (p. 1126), we find it stated that the odor of the sweat in scrofula resembles that of sour beer, while in intermittent fever it smells like fresh baked brown bread. The determination of odors is, however, very subjective, and (with a few exceptions) it is more than probable that different observers would detect different resemblances.

"*b.* Some of the normal constituents may be abnormally increased.

"1st. *The free acid of the sweat may be increased.* Lactic acid, which is the ordinary free acid, is usually increased in cases of rheumatism and gout; the sweat in these diseases has a strong acid reaction. When there is also an acid odor acetic acid is present. Prout has found free acetic acid in the sweat of a person suffering from hectic fever. After an attack of acute rheumatism, the joints of the feet remained swelled, for which potash baths were ordered. These baths, in the course of three weeks, brought on an attack of ecze-

ma, extending as high as the knee. The sweat from the feet had then a decided odor of acetic acid, which became more strongly developed when they were sharply rubbed. Anselmino found free acetic acid in the sweat of women during their confinement; and, according to Stark, the quantity of free lactic acid is increased in the sweat during scrofula, rachitis, and certain cutaneous eruptions.

"2d. *The ammonia of the sweat may be increased.* Anselmino found a larger proportion of (free?) ammonia in the sweat after an attack of gout than in any other case. Berend states that the sweat in putrid and typhus fever is ammoniacal; and in nervous diseases(?), according to Nauche, it becomes alkaline. All sweat with a putrid odor probably contains free ammonia.

"3d. *The salts may be increased.* Prout observed that in the case of a man with dropsy the skin became covered with a white saline crust of chloride of sodium, after an abundant perspiration. Anselmino found in the sweat, after a severe attack of gout, more salts than usual. In cases of gouty and urinary concretions, the quantity of phosphate of lime appears to be increased.

"*c.* Abnormal constituents may be present in the sweat.

"1st. *Albumen* has been observed by Anselmino in a critical sweat, which broke out in large quantity one evening over the whole body in a case of febris rheumatica, with severe pains in the joints; on the following day it had disappeared. Stark asserts that albumen may be found in the sweat in gastric, putrid, and hectic diseases, and also on the approach of death, in consequence of the abnormal solution of the solid constituents. I failed in detecting any certain indications of albumen in sweat collected (by means of linen washed with distilled water) from the breast of a person in the colliquative stage of tubercular phthisis.

"2d. *Blood or its constituents.* Voigtel observed an instance of bloody sweat from under the arm of a young man; it appeared after any violent exertion. In scurvy, putrid fever, and typhus icterodes, bloody sweat has likewise been observed.

"3d. *Uric acid* is stated to have been found in the sweat of arthritic persons (Stark). Wolff found that the sweat which had hardened on the forehead into a solid white substance, (in a patient with stone in the bladder), contained uric acid. Urate of soda is likewise stated to have been found in the sweat of persons suffering from gout or stone.

"4th. *Bilin and biliphæin* have been found in the sweat of persons with jaundice, and sometimes in such large quantity as to color the linen yellow, and to communicate a bitter taste to the perspiration. According to Berend, the sweat in febris putrida biliosa likewise contains bile-pigment.

"5th. *Red coloring matter of the urine* (*uroerythrin*) was found by Landerer in sweat from the axilla of a fever patient. A blue coloring matter, doubtless allied to cyanurin, has occasionally been observed in the sweat. Dr. Bleifuss has seen blue sweat from the foot of a patient with disease of the abdomen. Michel has likewise observed it in an hysterical woman and in a hypochondriacal man; it was most marked on the right side of the body. Billard observed a blue sweat on the upper part of the body of a girl.

"6th. *Fat* is stated to occur in colliquative hectic sweats.

"*d.* Substances altogether foreign to the animal organism may be conveyed, through the process of digestion, into the blood, and then occur in the sweat.

"Landerer has observed in his own person that after taking large doses of quinine, the sweat assumed a bitter taste of the drug. The following substances enter into, and have been detected in the sweat; sulphur, mercury, iodine, iodide of potassium, asafœtida, garlic, saffron, olive oil, rhubarb, indigo, prussian blue, and copper. (Stark, General Pathology, p. 1127; Baumgärtner, Elements of Physiology and Therapeutics, p. 486.)

"Many of these statements, regarding the change undergone by the sweat in disease, are fully confirmed; some must, however, still be regarded as doubtful."

A hundred and eighty-two pages of this volume are taken up with the consideration of the urine, one the most complex secretions of the animal body. Still, our author remarks, the relative proportions of its different constituents are not very variable. The following are stated to be the ordinary constituents of healthy human urine: "Urea; uric acid; [hippuric acid;] extractive matters, embracing alcohol-extract, spirit-extract, and water-extract, with their respective constituents; mucus; brown coloring matter of the urine (hæmaphæin); red coloring matter of the urine (uroerythrin); carbonic, lactic, hydrochloric, sulphuric, phosphoric, silicic, and hy-

drofluoric acids; soda; potash; ammonia; lime; magnesia; and peroxide of iron."

The qualitative analysis of urine is not difficult, many of its elements being easily detected; but some are discovered only by isolating them, which requires a more thorough analysis. The specific gravity, which throws a good deal of light upon the character of the urine, may be accurately and very conveniently determined by the ordinary 1000-grain bottle, which physicians would do well to make a part of their shop-furniture. This bottle is used with convenience in examinations of the blood, the specific gravity of which it is often of consequence to determine.

The urine must vary in its constitution with the nature of the food taken by the individual. It is not the same under a diet of animal matters, as when the food is vegetable. Numberless soluble substances reach the urine from the alimentary canal, and affect its color, taste, and odor, as well as its chemical properties. It is acid under certain circumstances, and under others alkaline. And what is still more curious, it often contains a larger quantity of certain salts than was to have been found in the food of the individual. The sulphates, for example, are frequently found in excess in this secretion, having come from the oxidation of sulphur in the animal economy, sulphuric acid being developed, which, uniting with the bases, affords these salts. Something analogous to this we see going on in nature around us every day, where *sulphuret* of iron becomes the *sulphate* of iron by oxidation in the atmosphere. As this slow combustion of sulphur and iron is attended with the formation of sulphuric acid and a sulphate, so in the animal economy the sulphuret of potassium becomes the sulphate of potash by imbibing an additional dose of oxygen. The following remarks of Dr. Simon on this subject will be read with interest:

"It is clear that the excretion of a salt taken with most of our articles of food, must be entirely dependent on the quantity consumed, and must therefore vary very considerably.

The urine, generally speaking, is deficient in salts during disease: our analyses show that the deficiency occurs at the expense of the chloride of sodium; the sulphates and the phosphates taking only a small part in it. I have analysed urine in typhus which contained a mere trace of chloride of sodium.

"Lecanu observed differences similar to those we have just noticed in alkaline sulphates and phosphates. The quantities excreted in twenty-four hours not only varied in different persons, but also in the same person at different times. From my analyses, and those of Lehmann, it appears probable that a connexion subsists between the quantity of urea and of the sulphates, and possibly of the phosphates likewise; that is to say, the sulphates always increase with the urea, and *vice versa*. I incline, therefore, to the opinion of Berzelius, that at least a portion of the sulphates and phosphates owe their origin to the oxidation of sulphur and phosphorus, previously associated with protein which has become changed during the active metamorphosis of the blood. We do not, however, mean, in making this statement, to deny that the salts are also supplied to the blood by the food, and again separated by the kidneys.

"The five following results, of much importance in physiology, have been deduced from the admirable researches of Lecanu:

"1. The quantity of urea excreted by the same person during equal periods is constant.

"2. The same is the case with respect to the uric acid.

"3. The quantities of urea and uric acid excreted by different persons during equal periods are variable.

"4. The varying amounts of urea excreted during equal periods by different persons, bear a relation to age and sex.

"5. The amount of fixed salts varies in different persons without reference to age or sex. It also varies in the same person during equal periods.

"An observation simultaneously made by Lehmann and myself, appears to me of high physiological import. We have ascertained that the amount of the urea, as well as of the sulphates, is increased by strong bodily exercise. I produced this state by taking such violent exercise for two hours that the pulse continued for some time above 100."

We append his summary in which the leading facts established by the researches of chemists are given in few words:

"To sum up once more: the urine is most abundant in urea, uric acid, and the most important salts, in men in the prime of life; it is less rich in these constituents in women, while the minimum occurs in old men and children. The nature of the food exerts an influence upon the composition of the urine; the amount of urea is increased by an excess of nitrogenous food, and diminished after living on food deficient in nitrogen. Upon a diminution of the quantity of food, the urine becomes deficient in nitrogen, as has been shown by my own experiments and those of Lehmann; but the separation of nitrogenous compounds, as for instance urea, through the urine, occurs even when no food is taken. The urine is most abundant in urea and sulphates after active bodily exercise, in consequence, doubtless, of increased vascular excitement. The quantity of urine discharged in 24 hours, amounts on an average to about 45 ounces. It is more abundant in the prime of life than in old age or childhood, and in the male than in the female sex."

Our author next proceeds to the consideration of the urine as affected by disease. The pathological changes may be reduced to one of the following forms: 1. One or more of the normal constituents of the urine may be in excess. 2. One or more of these may exist in less quantity than in healthy urine. 3. A normal constituent may be absent. 4. Substances not natural to the urine may be present. Something may be inferred respecting the constituents of the urine from its appearance. Simon says—

"I have already observed that the proportion of solid constituents to the water is so very variable, is so dependent upon the vicarious action of the skin and lungs, and upon the quantity of fluid that has been taken into the system, that it is impossible (without taking other facts into consideration) to determine from the urine alone, whether a mere increase or decrease of the solid constituents is due to diseased action. Pale urine, more or less like water, may be fairly considered deficient in solid matters, while a deep brown color is indicative of an abundance of these constituennts.

"The specific gravity, and still more the determination of the solid constituents in the manner which has been already described, will give the required information. The color of

the urine is sometimes deceptive, especially the fiery red that occurrs during fevers. Urine of this sort is frequently found to be poorer in solid constituents, and its specific gravity lower than we should have anticipated from its color: it is usually, however, more abundant in uric acid than normal urine."

In hysterical affections, and in nervous disorders generally, the quantity of water in the urine is increased. Becquerel relates a case of a girl who ordinarily secreted daily about thirty-seven ounces of water, but in whom the amount rose to ninety ounces on the occasion of a severe hysterical attack. On the other hand, in inflammatory affections the quantity of water is very much diminished. The author just quoted has seen it fall as low as twelve ounces in twenty-four hours, in patients laboring under the phlegmasiæ. In such cases the urine is dark-colored, of a high specific gravity, and possesses a strong acid reaction. The quantity of urea in such affections is absolutely or relatively increased; the food being reduced it ought to decline, but such is not the case. The waste of the body compensates for the diminution in the quantity of aliment. In diseases marked by a deficiency of blood, the quantity of urea is diminished. Chlorosis may be given as an example, and in typhus Simon found the same to be true. Uric acid varies according to the pathology of the ailment. It is increased in inflammations and the paroxysms of fevers. Our author continues—

"The following pathological conditions lead, according to Becquerel, to an increased quantity of uric acid: fever; great general functional disturbances, such as arise from oppressive dyspnœa in pulmonary emphysema or cardiac disease, acute pain, convulsions, delirium, &c., especially when attended with fever; and diseases of the liver, as hepatitis, cancer, or cirrhosis. The amount of uric acid is diminished in those cases in which there is a deficiency of blood, or where the blood is poor in corpuscles. Becquerel found this to occur in cases of chlorosis and anemia, and in persons in whom the vital juices seemed dried up. The amount of the salts

in the urine fluctuates extremely during disease. Generally speaking, we may assume that the quantity of salts decreases in most pathological states of the system; the cases in which the salts increase during disease being very rare. Becquerel states that in those diseases in which the amount of urea is only slightly diminished, the proportion of salts is not materially affected; but that in those cases in which the urea suffers a considerable reduction, the same takes place with regard to the salts. Analyses of inflammatory urine are, however, opposed to this statement, since in these cases the urea sometimes exceeds the normal amount, while the salts are decreased in an extraordinary manner. It is to be regretted that Becquerel has not undertaken an exact quantitative separation of the different salts, as the increase or decrease of the fixed salts collectively is a circumstance of much less importance than the varying relative proportion of the individual compounds."

The physiological average of uric acid, Simon thinks, may be placed at 1·5% of the solid residue; and in the phlogoses he has found it rise as high as 3%, while Becquerel has seen it amount to 5·9% Again, the quantity of extractive matter, which in normal urine amounts to 23·5% of the solid residue, rises in inflammations to 43%, and, on the contrary, the fixed salts decline here from 25 to 12, or precisely one-half. Abstractions of blood change the character of the urine; "it becomes clearer, specifically lighter, and the amount of urea decreases absolutely and relatively."

The urine of lunatics has recently been examined with much care, and it seems that it is characterised by an excessive quantity of ammonia in the form of a carbonate, urate, hydrochlorate, or ammoniaco-magnesian phosphate. In delirium tremens it varies; being now in a normal condition, and again of an inflammatory type; from which we may infer that the disease is not uniform in its character. In bronchitis it is "scanty of a dark-red color, strongly acid, and of a high specific gravity." Becquerel detected albumen in the urine of such cases. In pneumonia the urea is diminished, and the extractive matters, especially the alcohol-extract, are increased. Schonlein, one of the most ac-

curate of observers, has found that "the crisis in pneumonia shows itself in the urine by the secretion becoming turbid and sedimentary; after ten or twelve hours a crystalline micaceous deposit forms, above which the urine becomes clear." Upon which Simon remarks:

"The following instance is strongly confirmatory of Schönlein's opinion. In a case of pneumonia that recently occurred in his own wards, the urine during the height of the inflammatory stage, was dark, very acid, and deposited no sediment; at the period of resolution it became paler and neutral; one morning I found it yellow, neutral, and with a sediment of white crystals visible even to the naked eye. The microscope at once revealed the beautiful shapes assumed by the ammoniaco-magnesian phosphate. I was much struck with the singular relations of the urine itself. It was perfectly neutral; and any acid, even dilute acetic, threw down a white precipitate, which led to the supposition that caseous matter was present; I soon, however, found that this was not the case, for on treating a portion with hydrochloric acid and allowing it to stand for some time, very beautiful, nearly colorless crystals of uric acid were deposited."

It would be interesting to follow our author through his long list of diseases—gastritis, dysentery, pleuritis, hepatitis, nephritis, &c.—and note the changes wrought by each in the condition of the urine; but we must forbear. It may be that we have already extended our notice of his work too far for the taste of many of our readers. If so, while we crave their pardon, we must beg them to remember, that one whose business it is to cater for the palates of others, must be governed somewhat in his choice of subjects by the promptings of his own intellectual appetite. We find "the chemistry of man" to our taste. We like its precision, its condensation, its array of facts. Not a page, not a paragraph, but conveys some truth bearing upon the constitution of the animal frame. Many of these, for the present, may appear to be without any essential import—naked facts, the value of which cannot be perceived; but their utility will

become apparent in due season. The field has just been opened; the virgin soil is not yet fairly turned up to the air and the sun; but the harvest is coming on and promises to be a rich one. The chemistry of man deserves a place among our medical studies.

---

ART. VI.—*Observations on Remittent Fever as it occurs in the Southern part of Alabama.* By WILLIAM M. BOLING, M.D., of Montgomery, Alabama. From the American Journal of Medical Sciences for April, 1846. 8vo. pp. 56.

Dr. Boling is known to our readers as an industrious and judicious writer, zealously bent upon the advancement of medical science, and ready and able to communicate to his professional brethren the results of his professional experience. His various papers published in this Journal and elsewhere show him to be a man of close and patient observation, of sound judgement, excellent powers of discrimination, and independence of thought and opinion. This tract appeared a few months since in one of our contemporaries, and copies of it have been done up in pamphlet form for gratuitous distribution among the author's friends. It has already attracted an unusual share of attention, having been referred to frequently by Dr. Clymer in his late treatise on fever, and noticed in complimentary terms by many of the medical journals of the United States. Among other forms of fever not so commonly observed, Dr. Boling describes the *comatose* remittent, of which he says—

"Generally after a slight chill, high febrile excitement comes on, with flush of the face and general redness, with fulness and plumpness of the surface of the body; full and firm pulse; throbbing of the carotids; and deep and complete stupor. The respiration is slow, deep, and sometimes stertorous. Pupils frequently dilated, rarely contracted. The patient remains in this condition for a longer or shorter period, according to the type of the fever, tertain or quotidian. Gradually the stupor wears off, and for several hours of a re-

mission scarcely any appearance of danger may be present. Again, at the regular period, but frequently anticipating by several hours, the same train of symptoms set in with greater severity, to be followed by a less perfect remission, and so with each paroxysm, till a fatal termination takes place, or a favorable influence is exerted on the disease. The remissions are sometimes so imperfect that even at this time there is a tendency to stupor, and in one case that I treated in 1842 the patient lay eight days without speaking. When called to him he presented all the symptoms of apoplexy, and nothing revealed the true nature of the case but a disposition to yawn and stretch every morning, continuing from 7 A.M. to 10 A.M., and a slight abatement in the force, and a diminution of a few beats in the frequency of the pulse, with a temporary disappearance of the stertor. During the remissions, while yawning and stretching, his appearance was exactly that of a person just awaking from a sound and refreshing sleep, and the bystanders, even those who had seen him several times, could scarcely divest themselves of the impression that this was the case, and were in momentary expectation of seeing him open his eyes and address them. The case terminated favorably, the patient waking up during the hour of remission on the 9th morning, and required but little treatment after."

In the neighborhood of this city cases of comatose remittents and intermittents are occasionally seen, the termination of which, now and then, is in sudden death. Patients have been known to suffer for several days with slight paroxysms of fever, hardly keeping their beds, and deeming medical aid almost unnecessary, and then, at the access of the chill, fall into an apoplectic state and sink in a few hours. Ordinary observers would find some difficulty in distinguishing such cases from apoplexy; but the state of the skin and pulse reveals their true character to the medical man.

This paper is creditable to the industry, zeal and talents of the author, and will advance his reputation as a physician and a writer.

# SELECTIONS

FROM

# AMERICAN AND FOREIGN JOURNALS.

---

*Alkalies as a remedy in Cutaneous Diseases.*—M. Devergie has recently published some interesting observations on the alkaline treatment of skin diseases. He has employed alkalies in both papular and scaly affections; but with most success in the former, and particularly in the various forms of lichen. He employs three salts: the bicarbonate of soda, the carbonate of soda, and the carbonate of potash. The first of these he administers only internally, and usually prescribes it in solution, in some mild stimulant bitter infusion, or in carbonic acid water, the latter being an imitation of Vichy water. The dose at first is fifteen grains daily, in three or four glasses of the infusion, and this dose is augmented by eight grains every third day, until it arrives at one drachm, which dose is not exceeded. Externally the alkaline treatment is used in four different forms: in baths, in lotions, in powder, and in ointment. For the preparation of baths, either the carbonate of soda or carbonate of potash is employed—the quantity used for a single bath varying from eight to sixteen ounces, the strength being gradually increased. For scrofulous or debilitated individuals, he recommends the addition of one pound of common salt to each bath. The alkaline lotions are found of special benefit in skin diseases affecting parts covered with hair, as in the scalp, where they are usually so obstinate. For a lotion, from two to three drachms of carbonate of soda are dissolved in a pint of water. To the benefits derivable from the use of this alkaline wash in chronic eczema and impetigo of the scalp, we can bear testimony, from an extensive experience of its employment, both in hospitals and in private practice. The alkalies are used in the form of powder, as a depilatory, in tinea and in scycosis men-

tis. M. Devergie, however, employs the alkalies chiefly in the form of ointment, and sometimes combines a little quicklime or a little sulphur, with them. He uses ointments of different strength, according to the nature of the disease. Thus, for lichen and its forms, the proportion is from eight to fifteen grains of carbonate of soda to the ounce of lard; for lepra, psoriasis, or icthyosis, fifteen to thirty grains to the ounce of lard; and for porrigo favosa, thirty to sixty grains, with a grain or two of quick-lime. It must be remembered, that the carbonate of potash is more caustic than the carbonate of soda. The following are some of the formulæ he employs:—*Alkaline Liniment.*—Carbonate of soda, ʒi.; olive oil, ʒiv.; the yolk of one egg; first moisten the carbonate of soda, and then incorporate it with the oil and yolk. *Alkaline Syrup.*—Bicarbonate of soda, ʒss.; simple syrup, ʒviii.; dose, a teaspoonful, morning and evening, in a glass of water. *Alkaline Powder.*—Carbonate of soda, in an impalpable powder, one part; fine starch ten parts. For external use only.—*Annuaire de Thérapeutique*, 1846.—*Bul. Med. Sci.*

---

*Case of Placenta Prævia.* By G. F. Stickings, Esq. On the 20th instant, at 1 A. M., I was requested to attend Jane Bolton, aged 40, in labor of her twelfth child. On my arrival I was informed that she had had flooding for upwards of three hours: it had much increased during the last hour, and was still continuing. That she had lost much blood was evident from the bedding being completely saturated. On making an examination per vaginam I found the os uteri considerably dilated; the placenta presenting, and attached around its cervix. Having on a former occasion seen the value of removing the placenta, when so presenting, previously to the birth of the child, I hesitated not a moment (especially as the parturient process was active), but proceeded to separate it carefully from its attachment. This was accomplished without much difficulty, the hemorrhage ceasing immediately on its removal. The head presented naturally; the uterus acted with vigor, and a living male child was expelled. I am happy to state that the patient is doing extremely well.

I offer this as an additional proof of the value of the new mode of practice, in cases of presentation of the placenta.—*Med. Gaz.*

*On the Chlorosis of Adults.* By M. Blaud. There is a disease, pretty commonly met with, which seems to me to have escaped the observation of most practitioners. This affection, of great danger if misunderstood, is the *Chlorosis of Adults.* I do not allude to that decoloration of the skin dependent upon some prior disease, such as hemorrhage, intermittent fever, or some organic lesion, acute or chronic, &c.; but to an *essential idiopathic chlorosis*, proceeding from no other cause but such as produces it directly, that is, a particular defect of hæmatosis, and which can only be relieved by re-establishing the normal condition of this function.

Chlorosis is by no means peculiar to young girls arrived at puberty, and it is from want of attention to this fact, that many practitioners have mistaken it, when occurring in adults, for different organic lesions which in fact had no existence. Some, seeing the pale or yellow skin, have declared it to be symptomatic of hepatic lesion, and others have attributed it to affection of the spleen. Some attribute the dyspnœa and palpitations to lesions of the heart or large vessels, and others see in these the symptoms of an asthma. Such different views lead to various plans of treatment, none of which are efficacious, the chlorosis, indeed, seeming to derive a new intensity from their operation. Chlorosis may attack adults of either sex, any age, and of any condition in life. We have seen subjects of it, persons leading the most active and laborious lives, and others passing their time in luxurious idleness. The sober and the intemperate; those whom misery oppresses, and those who enjoy every abundance in life, may alike become its victims. So that the *predisposing* causes of the affection are as yet very obscure. The colorless and serous condition of the blood, the general debility, and languor of every function, seem to show that defective hæmatosis is the *proximate* cause. The *symptoms* are the same as in the chlorosis of young girls,—such as the yellowish-green skin (the conjunctivæ preserving their normal whiteness,) dyspnœa upon locomotion, *bruit de souffle* in the course of the carotids, &c. Still there are modifications noticeable. The color of the skin is rather greyish or earthy, than yellow, in consequence of its rough or wrinkled state, especially in the face. The palpitations are more severe; while there is moreover a deep, insupportable *malaise*, sometimes accompanied by a disposition to suicide, and a more or less abundant anal hæmorrhage coming on at irregular intervals. With the general langour and disorder of the digestive organs, there is œdema of the extremities; and, if the disease be left to itself, a serous

effusion into the cavity of the abdomen results from the atony of the absorbents. However severe these symptoms may appear, they never resist appropriate *treatment*, when this is not resorted to too late.

Of the cases he has met with, M. Blaud selects eight for description, four of them being women from 26 to 37 years of age, and the others, men engaged in active or laborious occupations. In most of these, various kinds of treatment had been employed before they came under the author's care, in the idea that organic disease was present: but he, guided by the general appearance of the patient and the absence of marked signs of such lesions, treated them all for chlorosis with complete success. He employed his own anti-chlorotic pills,* which have attained so high a reputation in France, in every case; and complete cures resulted in periods varying from 10 to 30 days of taking them. He adds in a note, that long experience has convinced him that these pills are also a specific in *intermittent fever accompanied with œdema of the lower extemities*, which has resisted quinine and all other febrifuges.—*Med. Chir. Rev.—Bul. Med. Sci.*

---

*Dr. Forbes and Homœopathy.*—In our last number we gave the conclusion of Dr. Forbes's explanation of his article on Homœopathy which, as we stated, had elicited a great deal of remark from his professional brethren. We append the whole of his paper not already inserted, and are sure it will be read with interest.

The article in the last number of this Journal [*British and Foreign Medical Review*] entitled 'Homœopathy, Allopathy, &c.,' as was, perhaps, to be expected from its subject and object, has attracted a more than ordinary degree of attention from the profession. The editor has, in consequence, been favored with numerous communications relating to it from his friends in all parts of this country, as well as from the continent of Europe, and from America. The views of the writers are, on the whole, in remarkable accordance with those given in the article; and the opinion is generally and strongly expressed, that some such changes in the manner of studying and treating diseases as are there propounded, are absolutely necessary for the successful progress of rational medicine. So

*Made thus: ℞ Equal parts of sulph. iron and carb. potas, powder separately and mix intimately; make into pills of six grains; of which 2 to be taken thrice daily for 3 days; 4 as often for as many days; and then 6 three times daily till cured.

convinced is the editor (the author of the article in question) of the truth and importance of this subject generally, that he now offers to open the pages of his Journal for its special consideration, if it shall be found that the warm interest at present excited by it, proves to be deep and strong enough to supply materials for its continuous elucidation and advancement. This is doubted. Still it has been thought advisable to evince practically and without delay, the earnestness with which the subject has been taken up and is sought to be promoted by the editor. From among the numerous contributions with which he has been already favored, two have, with the sanction of their authors, been selected for publication in the present number. Whether these shall be followed by others, in subsequent numbers, will, as just stated, depend on the inclination of the profession. It will afford the editor much satisfaction to be able to present to his readers any authentic communications of the same high stamp and admirable tendency as those now submitted to their notice.

Before concluding this prefatory notice, the author of the article on Homœopathy and Allopathy desires to make a few brief observations in reference to one or two points in it, on which he finds he has been somewhat misunderstood. The misconception is admitted by him to be natural on the part of his readers, in consequence of the necessity under which he found himself, for want of both room and time, of leaving all the latter part of the article a mere sketch or outline. Had he completed the whole subject on the same scale as was allowed to the exposition of the character and fallacies of homœopathy, he believes that he would have left no grounds for the friendly criticisms and gentle remonstrances which some of his very estimable and enlightened correspondents have addressed to him. Most assuredly, in this case, he would have run no risk of being set down—as he finds he has been set down by a few of his more careless readers—as favoring homœopathy; as denouncing rational therapeutics on the old system; as sceptical of the powers of all medicines; and as desirous of having diseases generally abandoned to the influences of Nature.

With regard to the charge of favoring homœopathy, it is submitted that it is the first duty of the historian to give an impartial narrative of the events and a fair exposition of doctrines, without prejudice or affection. This, it is believed, was done. And if full credit was given by the author of the article to the statements in the documents submitted to his consideration, and full justice rendered to the characters of

the individuals concerned, this was done—simply because it was felt to be just and right so to do. The writer might be mistaken in the estimate he formed of the value of the premises, but having conscientiously formed that estimate, its expression was a matter of course. The obligation of candor, imposed on all inquirers, was the more imperative in the present case, inasmuch as the writer felt that he stood in the position of a declared antagonist. And he knew, moreover, that anything approaching to unfairness could, in the end, only tend to injure its author and the cause he advocated. The writer was, indeed, too profoundly impressed with the reality and value of the ordinary system of medicine (miscalled in the article *allopathy*, to avoid circumlocution) to entertain any fears from conceding to homœopathy everything which it could possibly claim of right. And he cannot help indulging the belief that the arguments adduced against the validity of its doctrines will be found to be more efficacious than many previously urged, simply because more candor has been shown in examining these doctrines, and more justice done to the characters of the men who have originated and professed them.

Probably the statement in an early part of the article, to the effect that, 'homœopathy might be the remote, if not the immediate cause, of more important fundamental changes in the practice of the healing art, than have resulted from any promulgated since the days of Galen himself,' made an impression on some readers who did not attend to the qualifications afterwards given. The 'fundamental changes' alluded to had exclusive reference to the indirect or negative operation of homœopathic practice, in furnishing us with 'the means of instituting a grand natural experiment in therapeutics,' by leaving diseases really to nature, though nominally to medicinal treatment. And it is a profound conviction of the great importance of the knowledge to be thus obtained, which makes the writer now reiterate the statement, as well as another in a subsequent part of the article to the same effect, viz., 'that the doctrine of Hahnemann will have [*thus*] conferred an inestimable benefit on the healing art.' It never was intended to be conveyed as the opinion of the author, that the homœopathic treatment was valuable in itself, or that the system of rational eclectic medicine advocated by him, could derive any direct benefit from homœopathy by the adoption of any part of its so called medicinal therapeutics.

But, the writer thinks, moreover, that the declaration of his opinions, in more than one part of his paper, was sufficiently

positive, clear, and forcible, to secure him from the charge of favoring homœopathy in any way, or of over-estimating it at the expense of rational medicine. For instance, having in the course of the investigation come to the conclusion that homœopathy is to be utterly rejected and the old faith still adhered to, he added: 'In doing so, we consider, that though we are embracing a system extremely imperfect, we are, at least, embracing one which, with all its faults, contains a considerable amount of truth, and yet a greater amount of good; and which, above all, is, or may be made, in its exercise, consonant with the principles of science, and is capable of indefinite improvement; while, *in rejecting homœopathy, we consider that we are discarding what is, at once, false and bad—useless to the sufferer and degrading to the physician.*' (p. 250.) And again: 'It may possibly be inferred that we are entirely sceptical of the truth of medicine as a science, and think most meanly of it as a practical art. And yet this is not so. On the contrary, we look upon medicine, regarded in all its parts and all its bearings, as a noble and glorious profession, even in its present most imperfect state; and we believe it destined to become as truly grand and glorious in actual performance, as it now is in its essence, its aims, and its aspirations.' p. 259.)

A more specific charge has been made against the author for admitting, without sufficient coroborative evidence from other quarters, the validity of the results given in Dr. Fleischmann's Report. He anticipated this charge, and endeavored to guard himself, in some degree, against it, by stating that while he allowed Dr. Fleischmann to be a man of honor and respectability, and incapable of attesting a falsehood, he could only admit his statements 'with that liberal subtraction from the favorable side of the equation, which is required in the case of all statements made by the disciples and advocates of new doctrines.' (p. 242.) The 'subtraction' necessary in every individual case, assuming the narrators to be honest, will depend on many circumstances, both personal and relative. The author was and is disposed to make it very ample in the present case—so ample he believes, as would deprive Dr. Fleischmann and homœopathy of all the glory they have derived from this flattering record. Nevertheless, he here repeats the assertion that, 'even after this rectification, enough remains to justify the inference that these tables substantiate the momentous fact, that all our ordinary curable diseases are cured [*i. e.* get well] in a fair proportion, under the homœopathic method of treatment.' (p. 242.) The expression 'fair

proportion' is very indefinite, and therefore improper; it was meant to have reference to the results obtained under the *more general or common* modes of treatment pursued by practitioners, and which it was one main object of the article to denounce. It never was stated, nor was it in any degree believed, that the results obtainable and obtained under homœopathic treatment were equally favorable with those obtainable and obtained under an *improved system* of eclectic treatment, which it was admitted, was now practised by many, and the more general extention of which among practitioners it was the great aim of the paper to promote.

The writer of the article, however, may now state that, since the publication of this paper, he has received from one of our most distinguished clinical physicians a corroboration of a part of Dr. Fleischmann's report which has been regarded with much scepticism. This gentleman reports that he has over and over again proved the complete curability of *pneumonia* when left to the powers of nature, in cases under his own immediate observation. These cases occurred in persons who had come into the hospital in so advanced a stage of the disease, and with symptoms so favorable, as not only to justify but to render imperative the propriety of not subjecting them to any formal treatment. And the result, as stated, was perfect recovery.

In dwelling so long, and expressing himself so strongly on the curative powers of nature, the design of the author of the article was to remove all rational doubt of the capacity of the *vis medicatrix* to effect all that was effected under the imaginary influence of homœopathy. And he had, also, the great collateral object in view of doing his best to stay the plagues of polypharmacy, medical heroism, and many other kinds of *hurtful* interference with the progress of disease, which he believed and believes to be widely diffused in practice, and which loudly demand the attention of all who wish well to the best interests of the medical profession and the public. And he still thinks that, with so legitimate a purpose, he made no statements that are not only justifiable but imperiously called for. Nothing, however, could be further from his intention than to advocate the leaving of diseases to nature, as a general rule, or as a rule at all; or to deny the great value and efficacy of remedies, whether drugs or other means, in the treatment of many of them. The whole of his argument and invective was against the *abuse*, not the rational and legitimate use of medicines and medical treatment. So far from wishing all diseases left entirely to nature, the author of

the article has the strongest conviction that none ought to be so left; and that there is not a single case, whatever be its nature, and whether curable or not, that will not be benefited, more or less, by the careful superintendence of the scientific physician. For a man thoroughly acquainted with diseases in all their relations there will always be enough to do in regulating, as far as practicable, the manifold circumstances and conditions amid which the sick are placed, even if the individual case should require little or no medicine in the form of drugs. It is a most mean and circumscribed view of therapeutics, to regard it as almost identical with the use of drugs. So far is this from being the case, that it may almost be said to be the perfection of medical treatment to cure diseases without drugs, or with the smallest possible amount of drugs; as it is now allowed to be the perfection of surgery, not to perform operations but to do away with their necessity. And yet what an almost boundless variety of things, exclusively of drugs, call for the notice, and attention, and consideration, and discrimination, and appreciation of the man who is held responsible for the proper management of a severe disease, whether acute or chronic? It would, indeed, be strange if a task like this were either facile or of slight importance; that it could be safely entrusted to any one not deeply versed in all the better parts of medical science; or that its well or ill performance were a matter of indifference to the patient.

---

*Employment as a Cause of Scrofula.*—In considering this question, Mr. Phillips devotes his principal attention to the litigated question of the influence of factory labor in developing scrofula. He has secured several valuable and extensive statistical returns from the manufacturing districts; the substance of which we subjoin in his own words:

"In Leeds, Dr. T. Smith very kindly examined, at my request, 1095 children, employed in different factories, and examined 548 children of the same class, not employed in factories. The result is, that those not employed in factories exhibited marks of scrofula in 8 per cent. more instances than those whose days are spent in such establishments. In Manchester and other great manufacturing towns, a similar result has been obtained by examination made at my request, and on so large a scale that there is every reason to feel confident in the opinion already expressed. Again, from his dispensary practice, Dr. Smith has made me the following report:—Of

916 persons, between 7 and 14, the children of factory operatives, but not themselves employed in factories, 365, or 39 per cent., had enlarged glands, and 75, or 8 per cent., had scars resulting from scrofula. Of 567 persons, all under 21, and employed in factories, 124, or 22 per cent., had scrofulous scars."

"Mr. Poyser, the intelligent surgeon of Winksworth, kindly examined for me the people employed in Mr. Arkwright's mills, and the following are the results which he communicated:—'persons examined, 798; total number having marks of scrofula, 29.'

· · · · · "I have obtained, through the kindness of Messrs. Horner and Saunders, the results of the examination of 6754 factory children, from which it appears that marks of scrofula were found in only 905 instances, or only 13½ per cent. The returns of Mr. Freday, Mr. Deavis, and that of other friends, who have kindly made a comparative examination of a large number of children, exhibit similar results; and they leave no doubt on my mind that children employed in factories are more free from scrofula than the average of children in England and Wales."—*Brit. and For. Med. Rev.*

---

*Drug Shop of Galen.* By Dr. Hamilton.—On the way to the Fever Hospital or the Hospital S. Giovanni, we passed through the Forum and among the numerous temples, palaces, triumphal arches, the amphitheatre and other colossal ruins which distinguish this portion of the ancient city, one humble spot, more than all others will remain for ever sacred in my memory; and to this spot alone did my feet repeatedly turn, as more than once I attempted to follow my guide and interest myself in the more stately ruins about me. You may smile at my peculiar romance, but if ever you visit Rome, go along the Forum to where stands upon the Via Sacra the ruins of the celebrated temple of Concord. Close by, in the days of Commodus, stood the drug shop of old Galen, for so he tells us himself. You will not see his sign, nor the illuminated colored bottles at the windows, for the shop was destroyed in a great conflagration, at the same time with the temple, but if you remember well the life of this excellent father and skilful physician, you will turn to mark the place and perhaps linger thereabouts for a while musing, and thinking possibly the old man will come to look after his broken bottles and his plasters and ointments which he prized so highly. For

to judge from the amount of broken walls and loose stones laying about, the fire may have occurred but yesterday.

Galen had enjoyed when he came to Rome in the year 165 the rare privilege of examining a couple of human skeletons at Alexandria, and furnished thus with an extraordinary knowledge of anatomy, he gave public lectures upon the subject to the citizens of Rome. He had thereby attained great celebrity both as a physician and surgeon, when the jealousy of rival physicians procured his banishment from the city, to which he did not return until recalled by Aurelius, after whose death he was made physician to the young and profligate Emperor Commodus. He lived long afterwards to enjoy his restoration to fame and fortune, having died at the advanced age of 70 years.—*Buffalo Med. Jour., Aug.* 1846.

---

*Mode of conducting a pathological Analysis of the Blood.*—In the present number of our Journal will be found an interesting article, by Dr. Buck of this city, on the blood in several cases of disease. Deeming it likely that some of our enterprising young friends may be stimulated, by Dr. B's. praiseworthy example, to institute similar inquiries, we transfer from the British and Foreign Medical Review directions for conducting such experiments.

1. A glass containing exactly 1000 grains of water is filled with blood directly from the vein: a glass stopper fitting hermetically, is then inserted (care being taken to remove all bubbles), and the specific gravity of the blood ascertained. By continually shaking it, the blood is kept fluid; it is then poured into a porcelain vessel; and evaporated, care being taken to wash the glass out with distilled water, and add the latter to the other. The quantity of solid residue is reduced to the proportions in 1000 grains of blood. 2. A glass two and a half ounce measure is filled with the blood immediately after the preceding, covered and set aside for eighteen hours. The clot is then carefully separated from the serum, and the weight of both ascertained. 3. The clot is now to be pressed through a linen cloth four inches square, and first the fibrine, then the fluid cruor collected. Each is thoroughly washed, freed from moisture, and weighed; they are then carefully dried, and again weighed. The results are to be re-

duced to the proportion in 1000 grains of blood. 4. The serum and clot are to be placed in a glass containing 360 grains of distilled water, and their specific gravity noted; then 250 grains of each, at the same temperature, are to be dried so long as they lose weight; the weight of the residuum is then to be reduced to the proportion in 1000 grains. There is loss of weight by pressure through the linen, but as this will happen in the same proportion in all instances, the general results are correct.

Dr. Zimmerman observes that this method will be more suitable to the practical physician than Andral and Gavarett's, because of its greater simplicity and easier performance, while the results are quite as correct as by the latter method.

---

*New Remedy for Strangury.*—The Editor of the Buffalo Medical Journal, referring to Dr. Gordon's remedy for Strangury, reported in this Journal, Nov. 1845, *an infusion of the honey bee*, says.

"The following new remedy will not strike the reader as a very prepossessing addition to the materia medica. We have been informed, however, by a practitioner of this city, that in a case of strangury in which the introduction of the catheter was attempted without success, the prescription was tried with immediate relief; and it was subsequently repeated daily, with the same results, until the occasion for its administration ceased."

---

*Fruitfulness of Foreigners in Boston.*—In Broad street, a low, water-edge street in Boston, in which Irish families are inconveniently thick, Mr. Shattuck, author of the Boston Census, says there are 2131 inhabitants—and that the births amount to *one in fifteen* of the whole population. This prodigious fecundity, he continues, is a most remarkable characteristic of our foreign population, and generally prevails throughout the city. It is, no doubt, one of the principal causes of the increase in the number of deaths among children under five years of age.—*Boston Med. and Surg. Jour.*